VOLUME XVI NUMBER 6

THE ELEMENTARY SCHOOL JOURNAL

CONTINUING "THE ELEMENTARY SCHOOL TEACHER"

FEBRUARY 1916

EDUCATIONAL NEWS AND EDITORIAL COMMENT

Chicago Dinner at Detroit

A dinner of the graduates and students of the University of Chicago will be held in Detroit at the Hotel Tuller on the evening of Tuesday, February 22. All who have been connected with the University are cordially invited to attend. The President of the University will be present and will speak. It will greatly assist those who have the dinner in charge if all who intend to come will write as early as possible to the Dean of the College of Education, University of Chicago.

Raising the School Age in Wisconsin

During the latest session of the Wisconsin legislature an act was passed which raised the age of compulsory school attendance higher than that of any other state. Children between sixteen and seventeen who are not attending the regular public school are required to attend a day continuation school for one-half day a week for eight months of the year. This provision is to apply to all children in towns of more than 5,000 population, whether employed or idle.

For the past three years children under sixteen have been required to attend continuation school at least one-half day a week for eight months of the year. This requirement has been extended to ten months and hereafter applies to all, whether working or not, if not in attendance at the regular schools.

This new requirement, it is expected, will raise the attendance of the day continuation schools of the state, now about 15,000, from 40 to 50 per cent.

H. E. Miles, president of the Board of Industrial Education, says:

> The advance to the seventeenth year requires a superior educational content. Eighty-seven per cent of working children from fourteen to sixteen are in dead-end, blind-alley jobs. They are not allowed to work with machinery. Schooling is, therefore, only in the elements of the occupations. At sixteen the child is a man under the law. He can work at difficult machines. His continuation schooling must be related to this larger work and opportunity. The period will be a sort of bridge leading to apprenticeship and is expected to cause many employers to look to these schools for the superior workers whom they will indenture to be taught all of the respective trades in which they work.

The Portland Reading Plan

Portland, Oregon, is developing a plan for vitalizing elementary-school reading which is deserving of wider consideration. The plan is this: Each pupil selects what he or she wants to read. It may be prose or poetry. Each selects the subject that he likes best. Then he makes a summary of the story, leading up to the particular portion he intends to read. This summary is told the class, and then the pupil reads the most interesting part of the story.

The new plan applies to all grades including the fourth and up. It has been followed for several weeks, and the librarian of the East Portland Branch Library reports that 1,700 more books were taken from the library during October of this year than were taken during the corresponding month last year.

The same time is given to reading as before, but teachers report that much more is being secured from the reading-period. The monotony of the textbook is entirely eliminated.

At first the pupils were permitted to select whatever books they wished, and some of the teachers report that in many instances a deplorable taste on the part of the pupils was revealed. It brought out forcibly the fact that in many homes apparently no effort had been made to train or direct the taste of the children for good reading. After finding this out, the teachers are improving the opportunity to discuss books with the pupils.

Individual Instruction

A two-year experiment in individual instruction with some five hundred elementary-school pupils carried on by the teachers in the training department of the San Francisco State Normal has recently been reported by President Frederick Burk in what is called *Monograph C.* The monograph has attracted a great deal of newspaper attention because of the revolutionary nature of its findings and recommendations. It is welcomed especially because it claims to prove the practicability of a system whose theoretical soundness has not been generally open to question. This experiment has been carried on with a large number of children over a space of two years and has given results that demonstrate, according to the monograph, the possibility of a similar reorganization in public schools, and decidedly superior educational results with pupils under it, and an actual financial saving in the operation due to the elimination of many wastes incident to our present practice.

More specifically, the monograph asserts that under such a plan of individual instruction as is described therein the slowest pupils can complete the 8 years of elementary-school work in not more than 7 years, and the fastest in not more than 5 years. Individual instruction is thorough and permits of completeness. Classes of 40 or 50 pupils under prevailing methods reduce to 20 or 30 pupils per teacher automatically under this method. There are no repeaters, and there are no bright pupils lazily beating time during the slower progress of their associates. It is through improvement of this sort that individual instruction proves more economical in the long run in even a financial sense.

The experiment has not continued long enough, perhaps, fully to warrant all the claims of the monograph, but it is clear that a piece of real constructive work has been done here which deserves the attention of all interested in the economy and efficiency of elementary-school education.

The various sessions of Section L of the American Association for the Advancement of Science were well attended during the Columbus meeting. Dr. Paul H. Hanus of Harvard University was the retiring vice-president of the section. Dr. Leonard P. Ayres

of the Russell Sage Foundation was elected as vice-president for the coming year. The general topic under consideration was "The Scientific Study of Educational Problems." A large number of very significant studies were reported during the course of the meeting, among which were the following:

Meeting of Section L

Paul H. Hanus, Harvard University, reported the results of the detailed study of city school superintendents' reports. The paper brought out very clearly the strong and the weak points in city superintendents' reports as they are now presented to the public.

Cyrus D. Mead, University of Cincinnati, reported the results of an investigation with three hundred grade pupils to determine the relative value of oral reading and silent reading as means of securing thought from the printed page. The results secured by Professor Mead were in favor of silent reading. The discussion which followed this report indicated clearly sentiment on the part of educational leaders in favor of increasing the emphasis on silent reading in the public schools.

B. R. Buckingham, chief statistician, New York City, reported the results of a survey of the Gary schools.

William S. Gray, University of Chicago, reported on the Cleveland survey. A brief account was given of the general scope of the survey, the major portion of the report presenting in detail the methods used by the survey in securing objective evidence on which to base the conclusions presented in the report entitled "Measuring the Work of the Public Schools."

S. A. Courtis, of the Detroit public schools, reported the results of a study which showed the advantages and limitations of the use of Ayres's spelling scale in classroom measurements.

The Junior High School a Success in Topeka

At the beginning of the school year 1914–15, two junior high schools were established in Topeka, Kansas. These schools are designed to accommodate the pupils of the seventh, eighth, and ninth years. They are characterized by departmental teaching and by a course of study differentiated to meet the needs, on the one hand, of those pupils who will in all probability graduate from the senior

high school, and, on the other hand, of those pupils who will not graduate from the senior high school. To the former group, general academic work is given; to the latter, more practical work intended to equip the student for positions in commerce and industry.

The superintendent announces that the results of the organization of junior high schools has been satisfactory and that the number of such schools will be increased next year.

Junior High Schools in Utah

The *Utah Educational Review* for December presents a summary of the junior high-school developments in the state during the past year. The junior and senior high-school organization has been effected in Price, Carbon County, within one building. In Davis County a separate building has been provided for a newly organized junior high school. In Boxelder County the plan has been adopted in part, the eighth grade only being admitted at this time. In Salt Lake City, where the plan has been in operation for a number of years, there are now eight centers for it. Not all, however, are fully organized yet. Their popularity emphasizes the present lack of facilities. Ogden began to organize on this basis seven years ago and has three well-situated and fully developed centers now. The plan there has proved an actual saving in time, energy, and money. Certain increases in teachers' salaries are said to have been made possible by it.

Continuation Schools in Pennsylvania

On January 1 the new child labor law in Pennsylvania went into effect. The law requires that all minors between the ages of fourteen and sixteen years who hold working certificates and are employed shall attend continuation schools a total of eight hours each week. Attendance may be distributed throughout the five school days of the week or may extend over one school day of eight hours, or two days of four hours each, etc. Throughout the larger cities definite steps have been taken in the organization of such schools.

In Reading, Superintendent Foos has organized a continuation school of three grades, the division being based on the previous

training of the child. The course includes industrial geography, industrial arithmetic, English, hygiene, drawing, and salesmanship. The schools will be held in different parts of the city, located as conveniently as possible to the child's place of work. Each pupil will attend two days of four hours each during the week.

Two schools are to be opened in York, one on the west and one on the east side of the city. A school day of eight hours once a week for each child has been adopted. A limited number will attend each day.

Nine employers in large establishments in Philadelphia have agreed to maintain continuation schools at their own expense; in these schools 1,300 children will be provided for. A number of the larger manufacturers in Reading are also planning to maintain schools in their factories under the direction of the city superintendent. The law permits schools to be conducted in factories and stores, but stipulates that they shall not be in session on Saturday or Sunday and that they shall not open before eight o'clock in the morning nor close later than five o'clock at night.

Those school districts which hire teachers who have had three or more years of teaching experience in Pennsylvania will receive $200 for each teacher in the continuation school. These teachers are grouped in Class A. For each teacher in Class B, which consists of teachers who have taught in the schools of Pennsylvania one to three years, $150 will be paid to the school district by the state.

Vocational Guidance

During the Christmas rush season three hundred pupils of the Seattle schools tried themselves out vocationally in the stores of the city. At other times of the year the practice of putting the children to the test in actual business life is carried into every line of business and industry which they may enter on leaving school. The school board co-operates with the employers, attempting to respond to all invitations from them for this work. It is interesting to note that many of the employers are anxious to secure the children and the aid of the representative of the vocational bureau, who spends her time going from establishment to establishment studying conditions

and investigating those things most needed in every line of business and industry for which the child should be prepared on leaving school. She is permitted to enter stockrooms, offices, and departments in which the pupils work, correcting, advising, and assisting them, impressing lessons of honesty upon them, and pointing out their weak points. She is at liberty to work among them as she wishes, either talking with them individually or gathering them together in groups for short talks.

This plan of vocational guidance is exceedingly valuable in aiding the child in the selection of his life-work. The widespread adoption of the method throughout the large cities of the country will do much to help bridge the gap which at present exists between the classroom and the business house.

Bureau of Education

The Bureau of Education has issued a summary of its activities during 1915. It is not possible to reprint the statement in full. A few extracts may serve to show something of the variety and amount of the work of the Bureau. The showing is certainly impressive and should call out the hearty support of all school officers. Enlargement of the facilities of the Bureau depend on the recognition by all who are interested in schools of the importance of the services of the Bureau.

How the United States Bureau of Education, with one of the smallest appropriations given to any governmental bureau doing an independent service, has during the past year conducted an effective campaign for better rural schools, inspected and reported upon colleges and universities in various parts of the United States, made important beginnings in industrial education and homemaking, and stimulated activity in a score of other important fields of education, by lectures, correspondence, and the distribution of circulars and pamphlets dealing with educational subjects, is described by Dr. P. P. Claxton, commissioner of education, in his annual statement to Secretary of the Interior Franklin K. Lane.

During the year the specialists in rural education conferred with state and county school officials in efforts to improve teaching in rural schools, to obtain longer terms for county schools, and to determine upon a larger unit for rural school administration.

By means of an additional appropriation from Congress, a division of industrial education and homemaking was established during the year with one specialist in industrial education and two specialists in home economics. With this division it has been possible to do much of the preliminary work

necessary in anticipation of the Federal aid for vocational education provided for in the Smith-Hughes bill and indorsed by President Wilson in his message to Congress. The specialist in industrial education took part in the industrial survey of Richmond, Virginia, aided on request the Commission of Vocational Education for the state of Washington, and participated in a number of national, state, and local conferences on industrial education, several of which were called on the initiative of the Bureau of Education.

The specialists in home economics have co-operated with colleges in agriculture and normal schools in developing standards of education for homemaking, in providing plans for the training of teachers of home economics in colleges, high schools, and elementary schools, and in preparing courses of study for state and local school authorities.

A special phase of work which the Bureau has carried on with conspicuous success during the past year has been that of home gardening directed by the school. . . . .

A three-year survey of 575 private and higher schools for negroes was completed during the year by the division of negro education. . . . .

Other activities of the Bureau during the year included the completion of a digest of the school laws of all the states, an important example of the kind of work a federal bureau of education can do that is of the utmost service to the individual states; the issue of a bulletin on school administration in the smaller cities, which makes available for the first time material on professional supervision in an accessible form for superintendents in the 2,100 cities under 30,000 population; and the distribution of an illustrated bulletin on rural schoolhouses and grounds which has been much in demand for local school boards in the planning of school buildings in the country.

Four hundred thousand copies of the publications of the Bureau of Education were distributed during the year to school officials and others interested in education. In addition to these copies distributed free, 52,000 copies of Bureau documents were sold by the Public Printer. These publications ranged in size from the two-volume annual report of the Commissioner, which contained reviews of progress in different fields of education for the year and the usual comprehensive statistics of public and private educational institutions, to brief bulletins describing significant educational experiences in certain local communities that seemed worthy of being made known in other communities. The 1914–15 series of bulletins included four on "Education for the Home" which represent the first attempt at a comprehensive statement of the provision for training in homemaking in the United States; a survey of drawing and art instruction; a descriptive bulletin on school savings banks; and several bulletins on the health of school children. The demand for the Bureau's documents was such that in the case of many of the 48 bulletins issued during the year the edition was almost immediately exhausted.

In order that the material in Bureau documents may be disseminated as widely as possible, a circular letter service has been developed. More than

a million copies of circular letters were distributed during the year, nearly double the number for the preceding year. These circulars are sent to state departments of education, legislative committees, heads of departments of education in colleges and universities, normal schools, city and county superintendents, and to the press. This service received special commendation in resolutions adopted by educational associations during the year.

A Vocational Survey

A vocational survey is to be made of Evansville, Indiana, a city of 70,000 population, which will be similar to the survey made in Minneapolis, mentioned in the last issue of the *Elementary School Journal*. The city plans to raise $2,500 and it is expected that the state authorities will contribute $3,000. The survey, which will cover approximately four months, will be made with the co-operation of the state vocational training department and of the civic organizations of the city: the chamber of commerce, the central labor union, the parent-teacher clubs, the federated woman's clubs, etc.

The investigation will be carried on along two distinct lines. In the schools the study will include a survey of such factors as elimination and retardation, the wages, work, and advancement of the pupils who leave school, the comparative idleness of the non-graduate, graduate, and high-school groups, and the efficiency of prevocation schools, of manual arts in the elementary schools and high schools, and of the evening schools. The second study will deal with the industries of the city. It is hoped that the survey will make it possible to answer such propositions as the following: the content of technical knowledge or skill in various jobs that cannot be acquired through routine work and for which special instruction should be offered; where and in what manner the needed instruction can best be offered; whether any jobs are such that it is undesirable to direct youths toward them; the number of new workers that the industries can assimilate without overstocking the market; the necessary requirements as to age and physical and mental assets that workers should have for different jobs; and the extent to which industries at the present time are selecting their workers with a view to securing those best adapted to the work.

Handwriting Tests

A study made by the extension department of the State University of Iowa of the handwriting of 28,000 children in 110 towns and 14 counties of the state has revealed interesting facts. The quality of handwriting of the children in the rural schools, in town schools, and in city schools is approximately the same. The speed of writing ranged from 16 to 116 letters a minute. Improvement in writing parallels advancement through the grades. The quality of writing of the eighth-grade child in Iowa is considered sufficient to satisfy the demands of everyday life outside of school. It is asserted that Iowa children write more rapidly on the average than children of like grade elsewhere in the United States and at the same time maintain a quality of handwriting of equal standard. From this study an attempt will be made to establish standards of average attainment in writing for each of the grades in the elementary school.

Charts on School Organization

The Public Education Association of Buffalo is an organization which undertakes the study of various educational problems with the purpose of promoting improvement in the school system of Buffalo. One of the first problems which was taken up by this association was a comparative study of the general school organization of the leading cities of the United States. How is the superintendent appointed or elected in these cities? What are his functions and what the limits of his authority? What is the constitution of the Board of Education? These and other like general questions are answered in charts which the association publishes. The charts are of a type which should be hung in the rooms of boards of education. They have been carried through a second edition, are 24×30 inches in size, and can be supplied for 40 cents a set. Special prices will be given for quantities. Address Public Education Association, 807 Iroquois Building, Buffalo, New York.

EDUCATIONAL WRITINGS

Students of Dewey's educational ideas will welcome a comprehensive study[1] which puts his views in direct relation to those of the leading educational reformers whose works are recorded in the history of education, and which also gives new, concrete examples of innovations which have been introduced in actual school organization and commend themselves to Dewey as in accord with his principles.

Miss Dewey has co-operated with her father in collecting material from a number of important educational experiments all over the United States. Together they have constructed a book which is at once a theoretical discussion of educational problems and an interesting exposition of the reactions of our leading educational reformer to experiments which are now under way.

The book begins with an enthusiastic reference to Rousseau and his writings. Education that shall follow nature and free itself from all of the artificial trammels of the conventional school is the theme which the book emphasizes from the first to the finish. If Rousseau failed at any point, the book goes on to say, it was in the complete socialization of the child and in the relating of his educational principles to social demands. This defect in Rousseau's work was, in a measure, remedied by the work of Pestalozzi and Froebel, who perfected, under the influence of Rousseau, school organizations of a social and systematic type.

Another educational theorist to whom the book gives a good deal of space and attention is Madame Montessori. Her views are expounded fully and with a very large approval for her emphasis upon naturalness and freedom. A criticism of the Montessori conception of freedom is presented on the ground that her devices for developing freedom in children do not call for spontaneous constructive activity. The apparatus is such that the child's

[1] *Schools of To-morrow.* By John Dewey and Evelyn Dewey. New York: E. P. Dutton, 1915. Pp. 316.

behavior is directed in an undesirable degree, and he is not led to attack the practical situations in life which call out his personal ingenuity and spontaneous reaction upon the natural world about him. In spite of these criticisms it is clear that the authors of the book are in general heartily in sympathy with the spirit and temper of Montessori's teachings.

The sharp criticisms of the book are directed, not against other educational writers and reformers, but rather against the conservative school man and the layman who are not willing to accept the new standards of freedom. The most pointed criticisms are directed against the school man who is in favor of the conventional type of discipline merely because it furnishes a quiet schoolroom in which children are to work. Against mere convention and against formal discipline nothing can be said which is too caustic.

The other part of this book which will be of interest to all readers is the descriptive part and the reactions of the writers on the examples which they have seen. The school at Fairhope, Alabama, where children grow up under the general plan of Mrs. Johnson and where play, outdoor exercise, and unlimited freedom are the underlying achievements, expresses very fully the ideals of the authors.

Another type of school which comes in for unbounded praise because of its departures from conventional organization and because of its emphasis upon industrial activities is the Gary school system. The result which is secured in the classroom is regarded by the authors as sufficient evidence that the same kind of change ought to be introduced in general in all schools.

The practice school at the State University of Missouri is commended for its emphasis upon content in its treatment of English. School No. 26 in Indianapolis is described as a school which has adapted its work to the needs of the special community in which it is situated. So on through the list of experiments which the authors have selected as examples of innovations in school organization which illustrate naturalness, freedom, and adaptation to the community.

In discussing industrial education, the book goes farther than any of the educational theorists commented on in the earlier

paragraphs of this review and farther even than the practical experiments that are described. Here a complete theory of education is outlined in which practical trade training is not to take the place of intellectual training, but is so to enrich its content and modify its form that there shall be enthusiasm on the part of the student for his reading because he is reading something that relates to life. There shall be a more vivid interest in number because it deals with practical situations. In short, the treatment of educational theory that has been given in this book amplifies very materially the doctrine which appeared in Dewey's earlier book, *School and Society*, and also expresses in a much more concrete way many of the theories which appear in Dewey's early papers.

The book is an urgent plea for extensive reforms in school organization. In this respect it is very much like the earlier writings of our author. One who is familiar with Dewey's contributions to educational discussions cannot help feeling that the present book, like the earlier books, ought to be supplemented by a more hospitable evaluation of much that is conventional in school work. From the outset Dewey has had an attitude of objection amounting almost to hostility toward the instruction in reading which is common in schools. It has been one of his favorite topics that the reading exercises of the ordinary school are very formal, and it must be admitted that there is abundant evidence to justify his position. If we could be sure that the abandonment of the present method of teaching reading and the adoption of various practical forms of activity would result in no poorer reading than we now have, undoubtedly there would be a feeling of great relief on all sides; but the fact is that we do not dare give up our present form of reading until we have something better. The result is that Dewey's suggestions of reform are not accepted, because there is a definite feeling that reading must be taught in the schools, even if it is open to the charge of being formal and ineffective in some measure.

Furthermore, while one reads the suggestions for a change in reading with very large interest, one cannot help feeling that there ought to be some pointed question raised as to the actual achievements of some of these schools that have given up reading as the main subject of instruction. If it is true that industrial training is

a suitable substitute in many quarters for much of the drill that is now practiced, it ought to be possible to demonstrate this with such clearness and definiteness on the basis of scientific studies that we should have more than a mere description of the reforms. We ought to have a scientific evaluation of these reforms that will make them much more compelling than they are in the present descriptive form in which we have them. In short, educational reforms, like every other great movement, need to be checked up with current practices as well as with ends that are undoubtedly desirable, but probably difficult to attain.

Professor Dewey's book stimulates one to think largely about the schools of tomorrow. The question which one is disposed to put is: How does it treat the schools of today? Does it adequately evaluate what they are doing? Does it adequately represent the willingness of many school-teachers to modify present practices just as rapidly as it can be shown that these practices can be improved by changing them? What we need in connection with suggestions of reform is the scientific student with his tests and measuring rods to go behind the suggestions of reform, evaluate what has been accomplished where reform has been tried, and push in a vigorous way those types of improvement which can be shown to be definitely promising.

Mr. Foght, of the Bureau of Education, has rendered a very large service to rural education by his reviews of rural education, especially in Denmark. He comes now with a pamphlet[1] which is published as a bulletin of the Bureau, dealing with the organization of rural schools in Ontario, Canada.

Ontario has a school system which is very much more highly centralized than that of most of the states of the United States. The central subsidies which are given to schools are, on the whole, more generous than those which can be paid by most of our state departments.

[1] *The School System of Ontario. With Special Reference to the Rural Schools.* By Harold W. Foght. Bulletin No. 32, United States Bureau of Education, 1915. Whole Number 659. Pp. 58.

It is interesting to see what will happen in the smaller rural communities of a state, not unlike those of the United States, when a highly centralized school system begins to spend its money with the purpose of developing rural school buildings and courses of study. Mr. Foght has given in detail the results as they appear in Ontario. Here is a community with a stable population, with settled economic conditions, with the usual emphasis upon agriculture, and with facilities to work out its school problems in terms of a highly centralized control. The success of rural school organizations seems, as Mr. Foght reports, to be very large, and the example which is thus derived from Ontario stimulates one to believe that the time will come in the United States when school specialists will take charge of these districts in a very much more highly centralized way than is common at the present time.

A very interesting addition to the material which is supplied the teacher of history appears in the form of a series of picture books of British history which are now being published by the Cambridge University Press.

The value of pictures in textbooks on history has always been apparent, especially contemporary pictures. The present volume[1] contains portraits, pictures of buildings, pictures of various events of historical importance, and reproductions of the first pages of books. Each picture has complete annotations, so that the student, as well as the teacher of history, can make out the details of the various pictures. The advantage of having these pictures bound in a separate volume is that they can be employed in connection with any textbook, and the suggestion which is thus made of a series of textbooks which shall give the narrative but shall leave it to the more elaborate texts to give the spirit and temper of the historical period is one which is sure to attract the attention of the student of educational methods.

The present writer has no skill in judging the historical importance of the pictures which have been selected, but the form of the

[1] *A Picture Book of British History.* Compiled by S. C. Roberts. Volume II, 1485–1688. Cambridge University Press, 1915; New York: Putnam. Pp. 69.

book itself and the authority of those who have compiled it seem to furnish a sufficient guaranty that the pictures are themselves of first-class historical value. Certainly they are interesting to the lay reader, and one cannot fail to be enthusiastic about this addition to the equipment of the history class. What the atlas is to the geography class and the laboratory to the science class, pictures of this sort will undoubtedly be to the history courses.

Mr. Perry published some time ago a book on the wider use of the school plant which has served to stimulate many communities to forms of social organization that utilize the school building as the center for the cultivation of many types of activity useful to the older members of society. In his earlier book he called attention to the possibilities of social clubs, evening entertainments, recreation centers, etc. The present bulletin[1] traces the growth of this movement as it actually appears in a number of different centers. The pamphlet contains photographs illustrating the different kinds of social organizations which are now using school plants. The tables contain statements of the various centers where these different types of activity are undertaken. The summaries argue in favor of an extension of such work as is represented in these different centers.

The pamphlet is suggestive because it gives anyone who wants to organize this type of work numerous suggestions as to the lines of activity that may be undertaken; it is stimulating as a survey or a review of a movement that from time to time crops out in individual news notes, but evidently needs to be brought together in some such fashion as this in order to impress one with its general magnitude and influence throughout the country.

Dr. Healy,[2] director of the Psychopathic Institute of the Juvenile Court of Chicago, has come in contact with a great many individual

[1] *The Extension of Public Education. A Study in the Wider Use of School Buildings.* By Clarence Arthur Perry. Bulletin No. 28, United States Bureau of Education, 1915. Whole Number 655. Pp. 67.

[2] *Honesty.* By William Healy. Childhood and Youth Series, edited by M. V. O'Shea. Indianapolis: Bobbs-Merrill Co., 1915. Pp. 220.

cases of children who have been charged with offense when, as a matter of scientific fact, it is society which ought to be held responsible for the offense. He has expressed the attitude which grows out of his own work very clearly and with a background of scientific explanation that will be appreciated by lay readers.

His attitude toward honesty is that honesty is not born with an individual, but is acquired through one's efforts to react to his social and physical environment. When, for any reason, a child does not succeed in telling the truth, the fact is one which should be explained rather than merely charged to the child as an offense. It may be that the child is in a physical condition which more than explains why he has been irregular in his social conduct. It may be that there are subtle associations which have grown up in his experience that have led him astray at points where he himself is altogether unaware of the influences that have operated upon him. The teacher who merely tries to overcome the temporary embarrassments growing out of the child's offense will not succeed fully in dealing with the case. On the other hand, it is frequently true that a child ought to be cured of these evil tendencies by some form of punishment. The book is therefore not a plea for a removal of punishment, but rather suggests emphatically that punishment may, in many cases, be properly employed as the best means of improving the child. The only point is that punishment should, in this case, be used as an educational instrument and should be of such a character as to insure the reform which is desired.

With this general description of the book, one may be content with a brief quotation from the introductory chapter, describing the purpose which the author has in mind in reciting the various cases which he discusses:

> That this book may prove most serviceable, apart from the ordinary reading of it for information, we may offer the following suggestion: When brought face to face with an instance of dishonesty in a child—one of the commonest of delinquencies—the way to proceed rationally, that is, diagnostically, is through obtaining an answer to all the main problems suggested in the separate chapters. And, we repeat, even if one source of trouble is discovered, there should be further seeking until all the main possible causes of stealing are ruled out. Is the child normal, defective, or peculiar mentally; was the stealing done under the influence of companions; is there some particular mental content urging

toward delinquency; what, if any, are the weak points in home management or home interests, and so on? The chapter heads and the synopsis as given in the Table of Contents form a schedule by which can be covered all parts of the field of causation involved in the dishonesty of children.

Like the other books of the series, this is written in a style which makes it possible for the ordinary reader to follow the scientific discussions which it contains.

A year ago Mr. Howell, who is a principal of a public school in Jersey City, published in book form a Doctor's thesis[1] in which he summarizes all of the studies which have been made of the mental processes involved in the comprehension and use of numbers. The studies which he summarizes divide themselves into four groups:

First, there is the genetic group. Here are included those studies which have to do with the development of the number concept in primitive man, the development of the number ideas in mathematical prodigies, and in the special forms of individual number series noted by Galton and other writers on psychology.

Secondly, there is a series of experimental studies made in psychological laboratories on the rapidity of counting and the different forms of numbers and their apprehension. Many of these psychological studies are intricate and remote from the classroom, but they show that a beginning has been made in the experimental study of number. Especially does this part of the book review fully Dewey and McLellan's *Psychology of Number* and records a very large agreement with the fundamental views presented by these writers.

The third group of studies reviewed are the statistical tests which have recently been made by Courtis, Stone, and others who have measured the efficiency of classes in different phases of number work.

Finally, in the fourth section there is a summary of the didactic studies, especially those which were made by two or three of the European investigators.

[1] *A Foundational Study in the Pedagogy of Arithmetic.* By Henry Budd Howell. New York: Macmillan, 1914. Pp. 328.

The remainder of Mr. Howell's book is devoted to experiments which he worked out in his own school. We may pass over this last part of the book with the general comment that evidently he found such careful studies within his own school productive of useful administrative results and also helpful in improving the character of instruction in the classes themselves.

We return to comment upon the earlier part of the book, where all of the scientific studies that have been made of arithmetic are summarized. One is impressed, as he goes over this literature, with the fact that experimentation in the field of arithmetic is very difficult. One is also impressed with the fact that there is great need here of the sort of analytical work which will make it possible to describe in greater detail the difficulties which children encounter when they have to do with number processes in the grades. Evidently the field has by no means been exhausted, and it is not possible for us to give any such accurate descriptions of the progress which is made by the normal child in mathematics as we can now give in handwriting or even in the complex processes of reading.

Mr. Howell has had the courage to attack perhaps one of the most difficult fields in the science of education. It is the field in which practical failure of school work, as exhibited by non-promotions, is most conspicuous. While the result, as it appears in this book, is not encouraging for a scientific solution of these problems, it ought, at any rate, to stimulate students to see the importance of a new and more vigorous attack upon this important field of scientific inquiry.

Psychology has so long served as the introductory subject in normal courses and it has so long been a staple in the courses offered to teachers in service, that a general review of the types of psychology which are common in normal schools is always useful. The American Psychological Association has once before made a careful survey of the courses offered in this subject in normal schools. Apparently the progress which has been made in recent years in the development of educational psychology has not reflected itself in the courses given. Conventional courses are apparently today the common courses in normal schools and in teachers' organizations.

The present report[1] of the American Psychological Association raises once more the question which has frequently been referred to in this *Journal:* Would it not be better for the science of psychology, as well as for the students who are being prepared to teach, if the problems to which psychology is to be applied could be defined somewhat more clearly before the effort is made to require immature psychologists to make the applications of that science? For example, if teachers could be induced to study the habit formation which goes on during the cultivation of handwriting, would it not be better than to offer these same teachers an elaborate discussion of habit in the abstract? If such a proposal as this has an element of truth in it, it would seem to follow that a general course in psychology ought certainly to be turned vigorously in the direction of more concrete applications, and these concrete applications ought to constitute, even in the textbooks utilized for normal students and for teachers, a very much larger part of the subject than is now commonly the case.

[1] *The Academic Status of Psychology in the Normal Schools.* A report of a committee of the American Psychological Association. Published by the committee and presented at the last annual meeting of the Association. Princeton, N.J., December, 1915. Pp. 33.

METHODS OF TESTING READING. II

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The first article of this series described several rough practical methods of testing important phases of oral and silent reading ability. Both the "Preliminary" and the "Uniform" tests described in the preceding article can be given easily to large groups of pupils under normal classroom conditions. Because actual classroom conditions were kept foremost in mind when the tests were devised they are limited in scope and they are open to the criticism that errors of various types may occur. In spite of these acknowledged limitations the tests have great value in indicating the elements of strength and weakness, as the case might be, in the work of individuals and of groups.

In order to check the results secured through the use of the tests mentioned above and in order to secure a body of more exact facts concerning reading achievement, tests in oral and silent reading have been carefully prepared. After three thousand pupils had been tested, standards of achievement for the various grades were computed and may be used as the basis for comparison. Because standards of achievement have been determined for these tests they may be called "Standard Tests." These standard tests are not as easily given as the tests described above, because each pupil is tested individually at the expense of several minutes of time and usually by someone other than the regular classroom teacher. However, many teachers have been able to give these tests without difficulty in connection with their regular work. It is felt that a combination of the rough tests and the standard tests is an excellent one in investigations in which large numbers of pupils are involved and in which a high degree of accuracy is desired.

No attempt is made in this article to establish the validity of the standard tests. Such an exposition is the partial purpose of a

monograph now under preparation. It is the purpose of this article to present the tests in printed form to those who may be interested in standardized tests in oral and silent reading, to describe the methods of giving the tests, and to indicate some of the methods of working up the results.

ORAL-READING TEST

The following paragraphs constitute the subject-matter of the oral-reading test. The paragraphs are arranged in the order of increasing difficulty as determined by tests given to more than three thousand pupils.

STANDARDIZED PARAGRAPHS FOR ORAL READING

1

A boy had a dog.
The dog ran into the woods.
The boy ran after the dog.
He wanted the dog to go home.
But the dog would not go home.
The little boy said,
"I cannot go home without my dog."
Then the boy began to cry.

2

Once there were a cat and a mouse. They lived in the same house. The cat bit off the mouse's tail. "Pray, puss," said the mouse, "give me my long tail again."

"No," said the cat, "I will not give you your tail till you bring me some milk."

3

Once there lived a king and queen in a large palace. But the king and queen were not happy. There were no little children in the house or garden. One day they found a poor little boy and girl at their door. They took them into the palace and made them their own. The king and queen were then happy.

4

One of the most interesting birds which ever lived in my bird-room was a blue jay named Jakie. He was full of business from morning till night, scarcely ever still. He had been stolen from a nest long before he could fly, and he had been reared in a house long before he had been given to me as a pet.

5

The part of farming enjoyed most by a boy is the making of maple sugar. It is better than blackberrying and almost as good as fishing. One reason why a boy likes this work is that someone else does most of it. It is a sort of work in which he can appear to be very industrious and yet do but little.

6

It was one of those wonderful evenings such as are found only in this magnificent region. The sun had sunk behind the mountains, but it was still light. The pretty twilight glow embraced a third of the sky, and against its brilliancy stood the dull white masses of the mountains in evident contrast.

7

The crown and glory of a useful life is character. It is the noblest possession of man. It constitutes a rank in itself, an estate in the general good will, dignifying every station and exalting every position in society. It exercises a greater power than wealth, and is a valuable means of securing honor.

8

He was approximately six feet tall and his body was well proportioned. His complexion inclined to the florid; his eyes were blue and remarkably far apart. A profusion of hair covered the forehead. He was scrupulously neat in his appearance; and, although he habitually left his tent early, he was well dressed.

9

Responding to the impulse of habit, Josephus spoke as of old. The others listened attentively but in grim and contemptuous silence. He spoke at length, continuously, persistently, and ingratiatingly. Finally exhausted through loss of strength he hesitated. As always happens in such exigencies, he was lost.

10

The attractions of the American prairies as well as of the alluvial deposits of Egypt have been overcome by the azure skies of Italy and the antiquities of Roman architecture. My delight in the antique and my fondness for architectural and archaeological studies verges onto a fanaticism.

11

The hypotheses concerning physical phenomena formulated by the early philosophers proved to be inconsistent and in general not universally applicable. Before relatively accurate principles could be established, physicists, mathematicians, and statisticians had to combine forces and work arduously.

SILENT-READING TESTS

The following selections are used as the subject-matter for the silent-reading tests. When printed in form for the test each

selection appears on a stiff cardboard in three columns. The first column consists of the first paragraph of the respective selections and occupies the lower left-hand portion of the card. The second column contains one hundred words in the case of "Tiny Tad" and two hundred words each in the case of "The Grasshoppers" and "Ancient Ships" and occupies the center of the card. The third column is a short one in each case and occupies the upper right-hand portion of the card. This arrangement is a device to enable the person giving the test to secure the exact number of seconds required to read the middle column. The statement should be made that "The Grasshoppers" and "Ancient Ships" are each somewhat more difficult than the selections for the corresponding grades in the uniform tests described in article I of this series.

TINY TAD

(For Second- and Third-Grade Pupils)

Tiny Tad was a queer little fellow with only two legs and a short tail. He was nearly black, too, and much smaller than most tadpoles in the big pond. He could hardly wait for his front legs to grow.

"When I have them all," he said, "I'll leave this dirty water and go up into the orchard. What fun it will be to hop and hop and hop. If only I had a little brother to hop with me, I should be so happy.

It wasn't long before his legs began to grow. He moved about and kicked around until his legs were quite strong. "I am going out on the bank to see if I can hop," he said one night when he was just six weeks old.

The sun was hardly up the next morning when a little toad jumped out of the water and hopped up on the bank. He was very small, but none too small for the little legs that wobbled under him. It was Tiny, the young toad.

THE GRASSHOPPERS

(For Fourth-, Fifth-, and Sixth-Grade Pupils)

The grasshoppers were among the worst enemies of the early settlers of Nebraska. Their homes were on the high plains and among the hills at the foot of the great mountains in the West. Here they lived and raised their families.

In dry seasons there were more children and less food at home. Then they assembled and flew away in great swarms to the east and to the south. They traveled hundreds of miles. Sometimes on clear warm moonlight nights they traveled all night. More often they settled down late in the afternoon and fed, and then continued their way the next day.

The great grasshopper raid took place in September, 1874. Suddenly along the frontier states the air to the west was filled with grasshoppers. There were billions of them in the great clouds which darkened the sun. The noise of their wings filled the air with a roaring sound like a rushing storm, followed by a deep hush as they dropped to the earth and began to devour the crop.

All the corn was eaten in a single day. Where cornfields stood at sunrise nothing remained at night but stumps of stalks swarming with hungry hoppers struggling for the last bite. They stripped the garden patches bare. They gnawed great holes in the rugs and carpets put out to save favorite plants. The buds and fruit of trees were consumed. They followed the potatoes and onions into the ground. When they finished the garden and green crops they attacked the wheat and oats in the shock and the wild grass in the unplowed fields. Only two green crops escaped them, broomcorn and sorghum cane. They did not seem to have a sweet tooth.

Ancient Ships

(For Seventh- and Eighth-Grade Pupils)

There is no more interesting study to marine architects than that of the growth of modern ships from their earliest form. Ancient ships of war and of commerce equally interest them; but as they study the sculptures and writings of the ancients, they find records of warships far out-numbering ships of commerce.

Among ancient nations, the Greeks and Romans were the best shipbuilders. Judging from the description of their works, their crafts must have been elegant, swift, and seaworthy. This is more than can be said of many of the more showy productions of the shipyards of Britain, France, and Spain even so late as the Middle Ages.

There is no question now that the ships of the ancients made extended voyages urged by oars alone. A thousand oarsmen were sometimes required to man the sweeps besides a crew of five hundred soldiers and sailors. Written descriptions give us splendid pictures of fleets of these ancient ships moving swiftly along the villa-dotted shores of Greece, or majestically sweeping into some mirror-like harbor, and with sounding trumpets saluting the setting of the low, western sun.

We are able to make from old records very fair models of these ancient warships. One writer describes the great galley of Philopator as propelled by forty banks of oars. His description is questioned, for however plain the description of these warships may be, no one has yet shown the precise manner in which forty banks could be arranged. A bank of oars means a row on one deck, and while there are many pictures of galleys they show nothing more than a trireme, which is a ship of three banks. A ship of forty banks puzzles our imagination.

After the pupil has read the selection appropriate for his grade he is given a sheet of printed directions. On one side of the sheet the directions state that the pupil should write thereon all he can remember of the story which he read. As soon as he completes his reproduction he turns to the other side of the sheet and answers the ten questions which are printed there. The series of questions for the several selections are as follows:

TINY TAD

1. How many legs did Tiny Tad have at the first of the story?
2. How did Tiny compare in size with most of the other tadpoles in the pond?
3. Which legs did Tiny wish would grow?
4. Where did Tiny say he would go when he got all his legs?
5. What did Tiny wish he had to hop with him?
6. What did Tiny do to make his legs grow strong?
7. How old was Tiny when he decided to leave the pond?
8. What part of the morning did Tiny choose for leaving the pond?
9. How did Tiny get upon the bank?
10. What size was Tiny at the end of the story?

THE GRASSHOPPERS

1. In what western state were the grasshoppers enemies to the settlers?
2. What effect did dry seasons have on the number of grasshoppers?
3. On what kind of nights did the grasshoppers sometimes travel all night long?
4. When the grasshoppers were making their long journeys what would they often do late in the afternoon?
5. In what year did the great grasshopper raid take place?
6. Like what did the great groups of grasshoppers look as they traveled through the air?
7. What sort of noise did they make when flying through the air?
8. What change was brought about in the appearance of the cornfields by the grasshoppers between morning and night?
9. What did the settlers do to protect their favorite plants?
10. Why didn't the grasshoppers eat the broomcorn and sorghum?

ANCIENT SHIPS

1. To whom is the study of the growth of modern ships interesting?
2. How do the records of warships compare in number with the records of the ships of commerce?
3. What peoples were the best shipbuilders among the ancient nations?

4. How did the ancient vessels compare in elegance and swiftness with the more showy productions of the Middle Ages?

5. What kind of voyages were sometimes made by ancient ships when propelled by oars only?

6. What was the total number of men required on some of the ships?

7. Explain clearly what a "white villa-dotted shore" means to you.

8. From what source do we secure the ideas which enable us to make models of the ancient warships?

9. What does a "bank of oars" mean?

10. Why do we question the statement that the great galley of Philopator had forty banks of oars?

The following discussion and directions relative to the tests have been prepared for use in the Denver and Grand Rapids surveys and may be easily adapted for use in any school system.

DIRECTIONS FOR GIVING THE STANDARD READING TESTS

I. GENERAL POINTS

1. Advantages of the standard tests: The value of results secured through the use of tests depends very largely upon the conditions under which they are given. The preliminary and uniform tests of reading have certain limitations along this line. In order to check the results secured through the use of the rough tests and in order to secure a body of more exact facts, standard tests in oral reading and in silent reading will be used. The limitations of the rough tests and the ways in which the standard tests attempt to meet the conditions more adequately are as follows:

a) Whenever tests are given by a large number of teachers there is danger that the directions will be followed less accurately in some cases than in others. Further, some teachers, consciously or unconsciously, stimulate the pupils to more effective work than others do. The standard tests are given by a few well-trained people, thus eliminating much of the variation in results due to the varied influences of many personalities.

b) The physical conditions of some rooms in a building are more favorable for effective effort than is true in the case of other rooms. The standard tests require uniform conditions for the tests in a given building and an attempt is made to secure uniform conditions in all the buildings in which the tests are given.

c) To rely upon the pupil's statement concerning the total number of lines read in silent reading makes it possible for erroneous rates of reading to be recorded. The standard test eliminates this source of error, in part, by providing that the person who gives the test observe and record the actual number of seconds required by the pupil to read a given amount of subject-matter.

d) A question may arise concerning the validity of including the opening lines of a selection in the part upon which the time record for silent reading is based. The standard test provides that the pupil read several lines before the time record is begun, thus affording the pupil an opportunity to adjust himself to the conditions of the test and to the character of the subject-matter.

e) When a pupil tries to understand what he reads a number of complex processes are involved. The entire meaning which the reader secures is the result of this total mental activity. It is questionable, therefore, whether reproduction alone is sufficiently inclusive to serve as the basis for a comprehension grade. The standard test provides that the pupil's knowledge of what has been read be tested, not only by a reproduction, but, in addition, by answers to a series of questions.

f) Studies which have been made prove that many second- and third-grade pupils are greatly handicapped when required to write a reproduction of what they have read. The standard test provides that the pupils of these grades dictate their reproductions to the one giving the test, by whom it is copied.

2. Conditions under which the tests should be given: The following points should be observed by all persons giving the tests:

a) The tests should be given in a well-lighted room, preferably in a separate office or alcove, and in a room which is free from noises or interruptions. If possible, an adjacent room should be provided to which the pupils could go to write their reproductions after they have read the subject-matter of the tests. If such an arrangement is impossible, the room in which the tests are given should be equipped with a sufficient number of desks or tables so that three or four pupils could write at once.

b) The presence of visitors while the tests are being given proves a very great disadvantage. Experience has shown that the pupil

is disturbed very little by the presence of the experimenter but that the presence of a third person is very distracting. If anyone asks to observe the testing it is well to refuse the request politely but firmly. In order that those interested in the work of testing may learn how these tests are given, two or three demonstration tests should be given for their benefit.

c) The pupils should be tested separately in all cases.

d) The attitude of the experimenter toward the pupil is a very important factor. Greet the pupil with a smile and a cheery remark of some kind, thus putting him at his ease. Retain a pleasant attitude throughout the test. This does not mean that the pupil should be helped or encouraged. On the other hand, give no hint to the pupil concerning his progress until all of his work has been completed.

e) Arrangements should be made with the grade teacher to have the pupils sent to the experimenter. In the first three grades the following plan should be used. At the outset, two pupils should be sent from the first room tested. While the first pupil is being tested, the second one remains outside the test room at the door. When the first test is completed, the pupil is dismissed and the second pupil enters for his test. As soon as the first pupil reaches his room a third pupil should be sent to the door of the test room. In this way the experimenter always has a pupil ready to be tested as soon as his present case is dismissed. In the grades above the third, two pupils should be sent at first and one thereafter at the end of each eight minutes. Slight readjustments may be necessary in regard to the time schedule since some experimenters learn to test more quickly than others.

f) The tests should be given in the same order to each pupil. Give the oral-reading test first. Follow this immediately with the silent-reading test. First-grade pupils form an exception to this rule since they do not take the silent-reading test but are dismissed as soon as the oral-reading test has been completed.

II. DIRECTIONS FOR GIVING THE ORAL-READING TEST

1. The purpose of this test is to determine the rate of oral reading and the ability of pupils to pronounce words and sentences at sight.

2. When everything is in readiness to begin, hand the pupil a copy of the standardized paragraphs and give the following directions: "I should like for you to read some of these paragraphs for me. Begin with the first paragraph when I say 'Begin.' Stop at the end of each paragraph until I say 'Next.' If you should find some hard words, read them as best you can without help and continue reading." Pupils above the fourth grade should begin with paragraph 4. If three or more errors are made in this paragraph ask the pupil to read the preceding paragraphs also. In case pupils in the first two grades hesitate several seconds on a difficult word, pronounce it for the pupil and mark it as mispronounced.

3. While the pupil is reading, record two sets of facts in regard to the reading: the time required to read each paragraph and the errors made.

a) The time record is secured by noting the exact second at which the pupil begins reading a paragraph and the time when he completes it. The number of seconds required to read the paragraph should be recorded in the margin to the right of the paragraph.

b) In order to illustrate clearly the character of errors and the method of recording them the following paragraph is inserted:

The sun pierced into many large windows. It was the opening of October, and the clear sky was (of) a dăzzling blue. I looked out of my window (and) down the street. The white house(s) of the long, st(r)aight street were (a)lmost painful to the eyes. The clear atmosphere allowed full play to the sun's brightness.

If a word is wholly mispronounced underline it as in the case of "atmosphere." If a portion of a word is mispronounced, mark appropriately as indicated above: "pierced" pronounced in two syllables, sounding long *a* in "dazzling," omitting the *s* in "houses" or the *al* from "almost," or the *r* in "straight." Omitted words are marked as in the case of "of" and "and"; substitutions as in the case of "many" for "my"; insertions as in the case of "clear"; and repetitions as in the case of "to the sun's." Two or more words should be repeated to count as a repetition.

It is very difficult to record the exact nature of each error. Do this as nearly as you can. In all cases where you are unable

to define clearly the specific character of the error underline the word or portion of the word mispronounced. Be sure you put down a mark for each error. In case you are not sure that an error was made, give the pupil the benefit of the doubt. If the pupil has a slight foreign accent, distinguish carefully between this difficulty and real errors.

4. Each pupil should be allowed to continue reading until he makes five errors in each of two paragraphs.

5. As soon as the oral-reading test has been completed begin the silent-reading test as outlined below.

III. DIRECTIONS FOR GIVING THE SILENT READING TEST

1. The purpose of the test is to determine rate and comprehension in silent reading.

2. Grades II and III are tested on "Tiny Tad," Grades IV, V, and VI on "The Grasshoppers," Grades VII and VIII on "Ancient Ships."

3. The teacher first fills in the four blanks at the top of a report sheet: Name.....School....., etc.

4. The teacher then hands the pupil a card with the selection appropriate for his grade printed on it, with these directions: "Read the story on this card silently. Read the story from beginning to end without stopping or repeating any of it. Read the story rapidly but carefully. Do not stop reading to ask about difficult words; read such as best you can. Be prepared to tell the story or to answer any question about it when you are through. Do you understand?" Make the directions clear to the pupil before beginning the reading.

5. Secure the time record as follows: When the pupil shifts from the bottom of the first column to the top of the middle column note the position of the second hand. When he shifts from the bottom of the middle column to the top of the third column note the second hand again. Record the number of seconds required to read the middle column. Be sure that your record indicates the time for reading the middle column only. If possible use a stop watch.

6. If the pupil has been reading "Tiny Tad," ask him to tell you the story of Tiny Tad as well as he can. In the meantime

write as rapidly as you can just what the pupil says. Ask the pupil to tell it sentence at a time, if he talks too rapidly. When he discontinues speaking ask him if he remembers anything else. Following this, ask him the questions and record his answers.

7. If the pupil has been reading "The Grasshoppers" or "Ancient Ships," hand him the report blank to fill out. Ask him to write the story which he has read as well as he can. Impress upon him the fact that he should not look at the questions on the opposite side of the sheet until he has finished writing his story. While the pupil is filling the blank, the next pupil may do the oral reading. After hearing a few pupils you will learn to economize time.

8. It would improve conditions considerably if the pupil who is ready to write his reproduction could step into an adjacent room to write under the supervision of someone. This would free from distractions both the next oral reader and the pupil who is writing.

SCORING THE RESULTS OF ORAL READING

The problem of scoring the results of arithmetic tests is a relatively easy one, because the standard of perfect accuracy can be adopted as the basis for grading. Such a standard in reading would be open to serious objections since many of our most effective readers make some errors. It seems best, therefore, to adopt a standard somewhat below that of perfect accuracy for purposes of scoring. A careful study of a large number of oral-reading records has led to the adoption of the following standards as valid for our purpose: (*a*) A paragraph is not successfully read if it requires 30 or more seconds for the reading, and if 4 or more errors are made. (*b*) A paragraph is not successfully read if it is read in less than 30 seconds and 5 or more errors are made. Thus if a paragraph is read in 32 seconds with a total of 3 errors, it is read successfully; but if 4 or more errors are made it is not read successfully. Or, if the paragraph is read in 26 seconds with 4 errors, it is read successfully; but if 5 or more errors are made it is not read successfully.

Upon the basis of the type of scoring just outlined the steps of difference in difficulty between the paragraphs and the shifts

in difficulty from grade to grade have been determined and are represented in the following table.

A MEASURE FOR ORAL READING

	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
I	...	...	...	...	...	...	...	...	...	...	1	...	2	3	4	5	6	...	...	...
II	...	...	...	...	...	...	1	...	2	3	4	5	6	7	8	9	...	...	...	...
III	...	...	...	...	...	1	...	2	3	4	5	6	7	8	9	...	10	11	...	...
IV	...	...	...	...	1	...	2	3	4	5	6	7	8	9	...	10	11	...	...	...
V	...	...	...	1	...	2	3	4	5	6	7	8	9	...	10	11	...	...	...	...
VI	...	...	1	...	2	3	4	5	6	7	8	9	...	10	11	...	...	...	...	...
VII	...	1	...	2	3	4	5	6	7	8	9	...	10	11	...	...	...	...	...	...
VIII	1	...	2	3	4	5	6	7	8	9	...	10	11	...	...	...	...	...	...	...

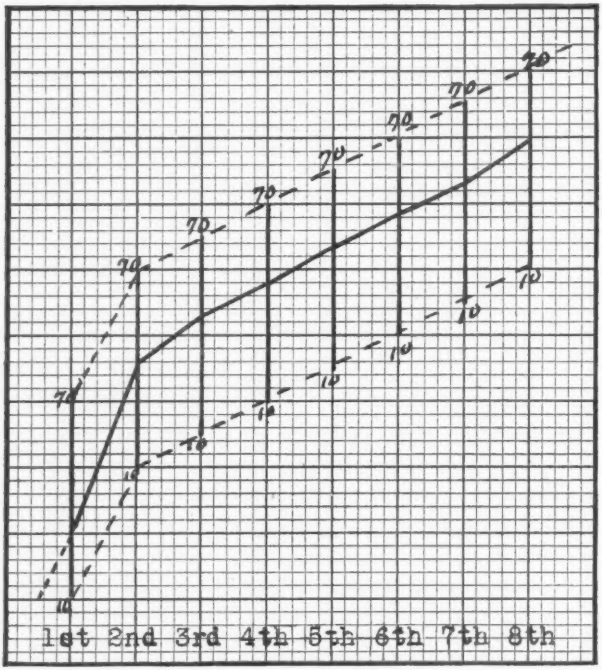
The horizontal row of numbers at the top of the table mark off twenty equal steps between 0 and 100. These numbers may be interpreted either as indicating the relative difficulty of the paragraphs, or the amount of credit which should be given for the successful reading of the various paragraphs. The Roman numerals to the left of the table refer to the eight grades of the elementary school. The entries in the table refer to the respective paragraphs of the series of standardized paragraphs. The table reads as follows: In the first grade a pupil who reads paragraph 1 successfully should receive a credit of 55 points; for reading paragraph 2 successfully he should receive 10 additional points, or a total of 65 points; for reading paragraph 3 successfully he should receive 5 additional points, or a total of 70 points, etc. In the second grade the successful reading of paragraph 1 does not represent so great an achievement as in the first grade. According to the table a second-grade pupil receives a credit of 35 points for reading paragraph 1 successfully. Ten additional points, or a total of 45 points, are given for reading paragraph 2 successfully. Five additional points, or a total of 50 points, are given for reading paragraph 3 successfully, etc.

As has been stated, ability to read a certain passage without error really means less on the part of a pupil in the upper grades than on the part of a pupil in the lower grades. Hence, grades are to be compared with each other by recognizing different levels of achievement. These different levels, as determined from a large number of records, can be expressed graphically as indicated

by the vertical lines in Chart I. Each line represents the scale for a grade and begins below at the point where the score of 10 should be represented. Higher scores can be represented by

CHART I

CURVE OF PROGRESS IN MECHANICAL DIFFICULTIES OF ORAL READING FOR 1,831 PUPILS



appropriate distances along the vertical line above 10. In the diagram the lines end at the points where the score of 70 belongs for each grade. The dotted oblique lines above and below, connecting the successive 70's and 10's respectively, indicate the curves of progress which would result if, in the one case, all scores were 10, or if, in the other case, all scores were 70. The solid line near the middle of the figure represents the actual record of 1,831 pupils.

This average record constitutes a standard with which individual schools may be compared. The numerical value of the record for each grade as represented in the diagram is as follows: first grade, 31; second grade, 43; third grade, 46; fourth grade, 47; fifth grade, 48; sixth grade, 49; seventh grade, 47; eighth grade, 48.

The score for a given class or grade may be determined as follows: Check each individual record to determine which paragraphs were read successfully. Count the number of pupils who read paragraph 1 successfully, the number who read paragraph 2 successfully, etc., throughout the series of paragraphs. The total number of successful readings of each paragraph for an eighth-grade class of twenty pupils was as follows: The numbers entered below the various paragraphs represent the total number of pupils who read the respective paragraphs successfully.

Par. 1	Par. 2	Par. 3	Par. 4	Par. 5	Par. 6	Par. 7	Par. 8	Par. 9	Par. 10	Par. 11
20	20	20	19	20	18	17	15	12	9	6

All of the pupils read paragraphs 1, 2, and 3 successfully. The successful reading of paragraph 3 by an eighth-grade pupil is credited with a score of 20 points, according to the table. Twenty successes on paragraph 3 are credited with a total score of 400. The following additional scores should be added: for 19 successes on paragraph 4, an additional score of 95; for 20 successes on paragraph 5, an additional score of 100; for 18 successes on paragraph 6, an additional score of 90; for 17 successes on paragraph 7, an additional score of 85; for 15 successes on paragraph 8, an additional score of 75; for 12 successes on paragraph 9, an additional score of 60; for 9 successes on paragraph 10, an additional score of 90; for 6 successes on paragraph 11, an additional score of 30. The sum total of all the scores for twenty pupils is 925. The average score for the class is $\frac{1}{20}$ of 925, or 47. A score of 47 is slightly below the average for the eighth grade.

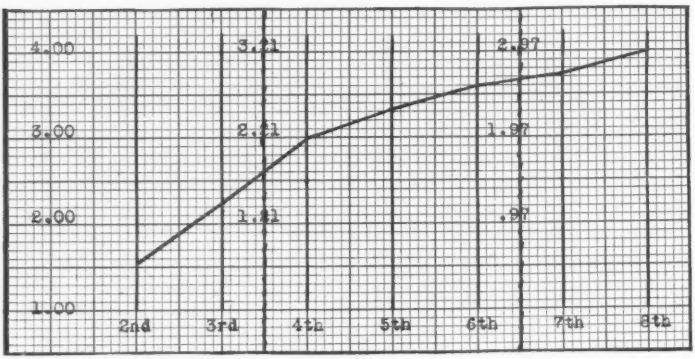
SPEED OF SILENT READING

The speed of silent reading is determined as follows: The average number of seconds required by each grade to read 100 words is determined. This average is then expressed in terms of the number of words read per second, by dividing 100 by the

average number of seconds required to read 100 words. Chart II represents the progress of 2,654 pupils in silent reading and may be used as a standard for comparison. Since three selections were used in order to suit the subject-matter to the maturity of pupils of different grades, a readjustment is necessary in the chart. The points of this readjustment are between the third and fourth

CHART II

PROGRESS IN RATE OF SILENT READING FOR 2,654 PUPILS



grades and between the sixth and seventh grades. A dotted line is drawn in the diagram dividing the curves of progress at these points. The figures at the left of the diagram indicate the number of words read per second in the easy selection; the figures on the line between the third and fourth grades indicate the equivalent number of words read per second when the second selection was used; and the figures on the line between the sixth and seventh grades indicate the equivalent rate for the most difficult selection. The average number of words read per second by each of the various grades is as follows:

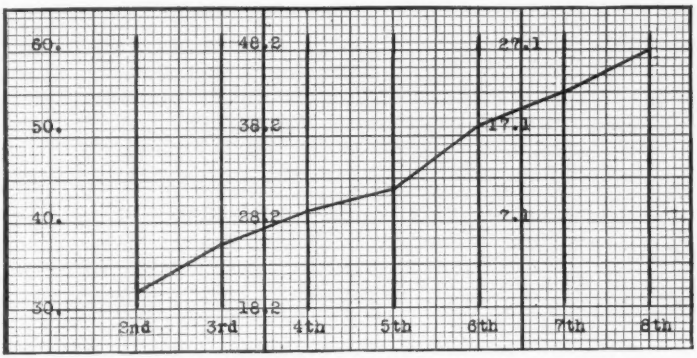
"Tiny Tad"		"The Grasshoppers"			"Ancient Ships"	
Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth
1.50	2.30	2.20	2.57	2.79	2.69	2.87

QUALITY OF SILENT READING

The quality of the pupil's reading may be determined as follows: All wrong statements, irrelevant statements, and repetitions should be checked from the pupil's reproduction and the remaining words counted. The percentage that these words are of the total number of words forms the reproduction grade. For each question

CHART III

PROGRESS IN QUALITY OF SILENT READING FOR 2,654 PUPILS



answered correctly, a grade of 10 points should be given. The average of the reproduction grade and the grade received for correct answers to questions should be found. This average grade forms the quality mark in silent reading for the individual pupil. The class average should then be determined. The progress in quality of silent reading for 2,654 pupils is represented in chart III and may be used as the basis for comparison. The chart for the progress in quality of silent reading should be interpreted in the same way as the chart for the progress in rate of silent reading. The average quality mark for each of the various grades represented in the diagram is as follows:

"Tiny Tad"		"The Grasshoppers"			"Ancient Ships"	
Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth
32	37	29	32	39	22	27

CONCLUSION

A supervisor or principal may utilize the results of these tests in various ways. In oral reading the progress made by a given grade may be compared with the standard and an estimate made of the efficiency of the teaching for that grade. The relative achievement of each pupil in the class may be determined. The dominant weaknesses of individuals and of classes are revealed by the original record of errors on the oral-reading sheets. The relative achievement of individuals and classes may be determined for speed and quality in silent reading. The figures reveal whether an individual or a class is weak primarily in speed or primarily in quality. The numbers representing the speed and quality for the individuals of a class may be compared to determine to what extent high speed favors good quality of reading.

The question has probably arisen in the minds of many readers as to the reason for omitting the quality of expression, as well as various other points, from the method of testing oral reading. The fact that the quality of expression is omitted should not be construed as evidence that its value has been overlooked. Its omission from this scheme is due to the fact that no method has been devised as yet for testing the quality of expression in an impersonal way. It is recommended that each supervisor or teacher who gives oral-reading tests adopt a standard of judgment for himself and estimate the effectiveness of the expression of each pupil whom he tests, in addition to recording the other points outlined in the directions. The writer has followed this method in hundreds of cases with the result that a great deal of insight has been gained concerning the reading habits of pupils of different ages. The more one studies the problem of expression the more difficulties he finds in establishing a set of standards which would meet with common acceptance.

HANDWRITING TESTS FOR USE IN SCHOOL SURVEYS

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The following material was prepared for the surveys of Denver, Colorado, and Grand Rapids, Michigan, and is presented for the benefit of those who wish to make surveys in their own school systems.

To the Teachers:

HANDWRITING TEST

The aim of this test is to measure the writing ability of the children. Two kinds of writing will be studied: first, the writing which is produced when the child's mind is on something besides the writing; and, secondly, writing which is produced when the child has his mind mainly on the writing and is consciously trying to make it good, as in the formal writing-lesson.

Composition test.—The first type of test is the simpler and we shall consider that first. For this test nothing should be said to the child about his writing. He should be given something to do which requires writing but which will attract his attention mainly to subject-matter. Such a situation can be arranged by asking the pupil to write a composition. Any topic may be chosen which is within the interests of the children of the particular grade. It is well to choose a topic which is related to subjects which have recently been treated in the class. Allow fifteen or twenty minutes —long enough to permit all the children to write several lines, but do not hurry them. There is no objection to making an outline before the writing begins. Then collect the papers, and keep them to put with those of the second test. *Do nothing to attract the child's attention to his writing during this exercise.*

Formal writing-test material.—In the second test we have to consider more particularly the characteristics of writing which we wish to measure. A moment's consideration makes it clear that good writing must meet two general requirements: it must be

legible and it must be fairly rapid. In dealing with the compositions collected in the composition test, we can measure only the appearance or form, since in composition the child does not write continuously. In this test, however, we shall measure the speed as well as the quality of the writing, and this necessitates so planning the conditions that the child will be writing continuously during a given time. The best method of insuring continuous writing is to have the class write from memory. In the special directions given below, passages are given for the various grades from the second to the eighth. *As the first step, then, let each class thoroughly memorize beforehand the selection for its grade.* In memorizing it is well to let the children write the selection once or twice, but do not give writing drill (analysis of the letters, etc.). To guard against loss of time from the failure of memory during the test the selection may also be placed on the board. During the preliminary work the preparation of the pupils should be in subject-matter, not penmanship.

Time.—The speed of the writing will be reckoned by counting the number of letters per minute written by each child. It is therefore necessary that the time be carefully and conscientiously controlled and that the children begin promptly, write all the time, and end promptly. *Each class should write exactly two minutes, as timed by the second-hand of a watch.* Care should be taken to see that each child is ready to write. Each one should have previously written the heading given below, should know what he is to write, and should have pen or pencil and paper ready at the starting-signal. Each one should also *instantly* stop at the stopping-signal, even if in the middle of a word.

The quality of the writing will be graded by an analysis of the writing itself.

Directions to the class.—Speed and quality will have equal weight in judging the excellence of the writing. It is therefore necessary that no more emphasis be laid on one of these characteristics than upon the other in the mind of the pupil. To insure uniformity of emphasis, the same instructions should be given all the classes, substantially as follows: In this exercise we wish to find out how well you can write. The writing of our class will be compared with that of other classes in other schools. It is necessary to write as

much as you can in the time that you will have and also to make the writing look as well as you can. If the writing is slow or bad looking, it will be graded down. Repeat the stanza if you get through before the time is up. Begin writing when I say 'Begin,' and stop instantly when I say 'Stop.' Write all the time. If you forget, look at the board. Ready. Begin."

Collection and heading of papers.—When the time is up, collect the papers and *put together the papers of each child from the two tests.* Be sure that each paper in the two tests has a heading (not written during the time allotted to the test) containing the following items: *Name, age, grade, school, and date.* The teacher's name should either be written on each paper by the children or indorsed on each paper by the teacher.

Paper.—The paper used should be such as is commonly used in the school system for writing, and should be uniform for a given grade in all classes and schools.

Pen or pencil.—The pen should be used in all the grades in which the pupils have used the pen for approximately half a year. In the grades below, the pencil should be used. The practice should be uniform throughout the system, as in the use of paper.

The selections.—The following selections should be used in grades indicated and should be memorized beforehand, as directed.

SECOND GRADE

Mix a pancake,
Stir a pancake,
Pop it in a pan.
Fry a pancake,
Toss a pancake,
Catch it if you can.

THIRD AND FOURTH GRADES

The rain is raining all around,
  It falls on field and tree,
It rains on the umbrellas here,
  And on the ships at sea.

FIFTH TO EIGHTH GRADES

Breathes there the man with soul so dead,
Who never to himself hath said,
  This is my own, my native land!
Whose heart hath ne'er within him burn'd,
As home his footsteps he hath turn'd,
  From wandering on a foreign strand!

MEASURING THE QUALITY OF HANDWRITING

PART I. OUR PURPOSES IN MAKING A WRITING SCALE

GEORGE L. JOHNSON
Marshall School, St. Louis, Missouri

When Dr. Thorndike advocated the need and the possibility of using a "graphometer" to define qualities in handwriting,[1] he assumed the position of a pioneer in that field. Since the time of that suggestion, however, a number of handwriting scales have been proposed. The general purpose of such a scale and the values which it should give are quite generally understood. It will be well to enumerate them briefly, however, as a starting-point for the study which follows.

1. A scale gives the basis for a common understanding and accuracy in judgment. The mind of a listener or reader is not satisfied to learn merely that someone's handwriting is excellent, good, medium, or poor, so long as those terms refer to an unknown or hidden standard. When we call one specimen of writing good and another poor, we refer to some particular quality of handwriting which is either subjective (in the mind of the speaker) or objective (specified on a scale). Statements based on subjective standards are necessarily mere opinions; but statements based on objective standards are judgments which everyone understands alike. For instance, when a teacher informs her principal that a schoolroom is cold, he asks, "How cold?" If she says 55 degrees, there is at once a common understanding.

a) This enables the writing supervisor to specify unmistakably what the quality of writing should be in a given grade.

b) It enables the teacher to say to the pupils in definite terms how much progress they have made and to compare their status with that of other pupils.

c) It eliminates the conflict of personal opinions which too often results in a feeling of animosity and dissatisfaction.

[1] Teachers College Record, March, 1910.

2. It is a pedagogical aid and stimulus.

a) By its use the pupil compares his present writing with his former writing, even better than he can do it with the "progress" package; and at the same time he can ascertain his standing relative to that of other pupils, either present or absent. The result of either comparison can be expressed in certain terms which all will understand.

b) By using the scale the pupil also learns to analyze his writing and becomes conscious of the particular elements on which he needs to make improvement. Thereafter his practice becomes an intelligent practice.

3. It is valuable to the school administrator and to the scientific student of education in that it enables them to compare different classes or different schools or to test the value of certain methods, without actually bringing the samples before them. When measured and tabulated according to an accepted scale, the study becomes a matter of comparing figures which have a definite and uniform meaning.

Members of the St. Louis Alumni Chapter of Phi Delta Kappa[1] who co-operated in making and in using experimentally the tentative scale presented herewith felt the need of a scale which would measure the writing of their pupils by factors other than mere legibility, the only factor considered in making the Ayres Scale. We are teaching an adopted slant writing. The types of writing on the Thorndike Scale are very unlike the writing most commonly found in our schools. Vertical specimens, for instance, however perfect and legible they might be, would not receive a high rating in our system. To get a scale that will measure the quality of handwriting by all the factors which we seek to develop in our penmanship lessons is our problem. This will include legibility, slant, shape and size of letters, quality of line (movement), spacing, and alignment. To obtain such a scale the following study was undertaken.

[1] H. B. Dickey, Bates School; J. S. Nants, Garfield School; C. R. Stone, Mann School; W. R. Reavis, Laclede School; G. R. Johnson, Marshall School; C. E. Witter, Bryan Hill School; H. H. Ryan, Mullanphy (resigned); H. H. Edmiston, Harrison School; F. W. Wiley, Secretary to the Superintendent, St. Louis.

PART II. HOW THE SCALE WAS MADE

C. R. STONE
Mann School, St. Louis, Missouri

The group of eight principals met from two to four times a month from November to April inclusive. The head writing supervisor met with the group as an expert adviser. At the beginning a general plan of procedure was adopted. This plan was modified as experience from time to time indicated advisable.

Determining the number of steps on the scale and collecting the papers.—Each of the eight principals had the following dictation written during a writing lesson by all pupils from the fifth to the eighth grade inclusive: "A new pen has a thin covering of oil to keep it from rusting. This oil must be removed before writing so the ink will flow freely. Pupils should use a penwiper or blotter to wipe the oil off the pen. Ink will rust the pen very quickly when left on it. Be sure to remove all ink from the pen when you are through writing."

Each principal ranked his papers into as many groups as he found there were qualities of writing from the poorest to the best. The number of qualities of writing found by the different principals ranged from 12 to 21. This preliminary study was made to help in determining how many steps or qualities there should be in a writing scale for our upper grades. It was finally decided to have fifteen steps or qualities, but that the best sample should be a better sample than any sample produced by the pupils and that the poorest sample should be a poorer sample than any written by a pupil in these grades. The quintile table of distribution is now considered the most serviceable in scientific educational measurement. Fifteen was selected because it is a multiple of five and is approximately the number of qualities of writing that could readily be recognized in these grades. It was then proposed to include the fourth grade in the study. Each principal then collected papers from all the pupils in the fourth grade and made a study of them to determine whether a scale for the four upper grades would also be usable in the fourth grade. The result was a decision

to include the fourth grade. Each principal had now collected approximately 500 papers. Each principal then arranged his papers into 13 piles or qualities ranging from the best to the poorest, and selected two papers from each pile. In addition, each secured two samples of writing from teachers or supervisors which he considered better than any of the pupils' writing collected and two samples of writing from the lower grades which he considered poorer than any of the samples collected. In all each principal furnished 30 samples consisting of two samples of each of 15 qualities, each of the two being different types of writing. This made 240 samples in all. It was the judgment of all the principals co-operating that it would be better to submit to the judges a small number of papers carefully selected, so as to include all qualities and types of writing, than to submit a large number promiscuously selected. The samples submitted to the judges consisted of the first five lines of each paper. These were numbered from 1 to 240. There was no marking whatever on any paper to indicate the identity of the paper.

The judges.—These 240 papers were ranked from 1 to 15 by twenty-five judges consisting of the eight co-operating principals, eight teachers selected because of excellence in teaching writing, eight supervisors, and the Secretary to the Superintendent, an experienced school man. All the judges were directly concerned in the teaching of writing in St. Louis. It is believed that a scale selected as a result of the judgments of those directly concerned in the teaching of writing in our schools would be more likely to be usable as a measuring and a teaching instrument than one otherwise selected. A meeting of the twenty-five judges was held for the purpose of giving instructions. The following set of instructions were given to each judge.

DIRECTIONS FOR GRADING PAPERS

Rank the papers from 1 to 15 by separating the papers into 15 groups. Group 1 should contain the best paper or papers; Group 2, the next best; Group 3, the next, etc.

The difference in degree of quality between Groups 1 and 2 should be approximately the same as between Groups 2 and 3, etc.

Judge each sample of writing by the general impression that you get from looking at the page. The general impression should be determined by a consideration of the following elements:

I. Movement (muscular)
II. Legibility
  a) Form of letters
    1. Size
    2. Slant
    3. Other details
  b) Spacing between letters and words
  c) Relation of letters to line
  d) Uniformity of slant
  e) Color of line

After the separation of the papers into 15 groups is completed, Rank I is to be entered on the tabulation sheet for the papers in Group 1, and Rank II, for papers in Group 2, etc.

Make no notations of any kind whatever on either side of the writing paper.

In order to secure a thoroughly uninfluenced judgment on the part of the individual judges, no one shall give or receive any information whatever about the result of the grouping or about the experience of any other judge in ranking the papers until all of the judges have completed their work.

Table I shows the rank given by each judge upon each paper. For example, paper No. 1 was ranked 6 by judge No. 1; 7 by judge No. 2; 5 by judge No. 3, etc.

TABLE I. (*In Part*)

AGREEMENT AND VARIABILITY SHOWN IN THE TABULATIONS

Showing the rank given by each judge on any paper

Paper No.	Rank Given by Judge No.																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1.....	6	7	5	5	4	6	4	3	3	9	7	8	7	11	13	10	5	5	4	9	5	4	4	8	5
2.....	6	5	5	4	5	7	6	5	7	10	5	9	5	11	11	10	5	5	8	4	6	4	5	11	7
6.....	15	13	14	15	15	15	14	14	14	15	14	15	14	15	14	15	15	14	15	14	13	14	14	15	15
10.....	1	1	1	2	1	1	2	1	1	1	3	2	2	1	1	1	1	1	1	1	4	1	1	1	1
80.....	1	2	3	7	5	14	3	5	2	10	8	15	6	8	3	13	4	3	8	12	1	6	4	4	6

Table II is a condensation of Table I. It shows that paper No. 1 received 2 judgments for Rank 3, 5 for Rank 4, 6 for Rank 5, etc. The median judgment falls within the number in parentheses. It is evident that there is considerable variability in the judgments for No. 1, which range from Rank 3 to Rank 13. Paper 80 shows the greatest variability of all, ranging in judgments from Rank 1 to

Rank 15. Paper 10 shows the greatest agreement on the part of the judges of all the papers shown. Paper 41 (not shown here) received

TABLE II. (*In Part*)

SHOWING THE NUMBER OF JUDGMENTS GIVEN EACH PAPER FOR EACH RANK

Paper No.	Number Judgments for Rank No.														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.....	....	....	2	5	(6)	2	3	2	2	1	1	0	1	....	....
2.....	....	....	....	3	9	(3)	3	1	1	2	3	....	....	....	....
6.....	....	....	....	....	....	....	....	....	....	....	....	....	2	(11)	12
10.....	(19)	4	1	1	....	....	....	....	....	....	....	....	....	....	....
80.....	2	2	4	3	(2)	3	1	3	0	1	0	1	1	1	1

TABLE III

SHOWING THE NUMBER OF JUDGMENTS FOR EACH RANK FOR EACH PAPER HAVING A MEDIAN OF 8

Paper No.	Number of Judgments for Rank No.														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
22....	....	....	....	1	2	2	4	7	3	1	2	2	1	....	....
35....	....	....	1	1	1	2	4	7	2	2	2	2	1	....	....
42....	....	....	....	2	3	4	2	3	5	1	1	4	....	....	....
47....	....	....	....	2	3	2	4	4	2	0	3	5	....	....	....
49....	....	....	....	3	0	3	5	8	3	2	4	1	....	....	....
69....	....	....	....	1	2	0	5	6	5	1	2	2	1	....	....
102....	....	....	....	2	2	6	5	5	2	3	3	1	....	....	....
127....	....	....	....	1	0	0	5	8	5	1	3	2	....	....	....
111....	....	....	....	....	1	2	5	5	4	4	2	2	....	....	....
148....	....	....	1	3	0	4	3	3	5	2	0	2	2	....	....
158....	....	....	....	....	2	5	3	4	3	3	1	1	3	....	....
160....	1	....	0	1	0	3	4	5	3	3	3	3	2	....	....
165....	....	....	....	3	1	3	4	3	3	4	1	1	2	....	....
167....	....	....	....	2	0	4	2	8	2	4	2	1	....	....	....
168....	....	....	1	1	1	3	3	5	3	3	1	4	....	....	....
169....	....	....	....	2	1	3	6	4	3	1	2	2	1	....	....
170....	....	....	....	3	3	2	3	8	4	4	1	0	1	....	....
181....	....	....	....	1	4	3	3	4	2	1	1	2	1	3	....
182....	....	....	2	0	1	3	5	6	2	4	0	0	2	....	....
185....	....	....	....	1	2	2	4	7	2	3	1	2	1	....	....
186....	....	....	....	....	1	7	3	5	5	2	1	0	1	....	....
190....	....	1	0	2	2	3	4	5	2	4	2	....	....	....	....
225....	....	....	1	2	2	4	1	5	3	1	2	1	1	2	....
207....	....	....	....	....	3	1	2	7	6	2	2	1	1	....	....
228....	....	....	....	3	1	0	6	4	5	2	1	3	....	....	....
230....	....	....	1	2	3	4	0	3	6	4	1	1	....	....	....

a unanimous vote for Rank 15. This was the only paper ranked the same by all judges. The majority of the papers show a variability

of judgments about like paper 2, ranging over eight ranks. There was much closer agreement on the part of the judges on the papers having a high median rank or a low median rank than on the papers having a median rank from 5 to 10. The variability in judgments is shown in the foregoing tabulation for all papers having a median rank of 8. The judgments on the paper in this group having the *least* variability, Paper 111, extend over 8 ranks.

Selection of the samples for the fifteen-unit scale.—Table IV indicates the measures of central tendency and variability of judgments which were calculated and tabulated. The problem then became that of selecting 15 samples which would be consecutively the same distance apart in value as measured by the exact median and which would have as high a degree of uniformity of judgments as possible. That is, the sample for Rank I must have an exact median as near 1 as possible and must have as high a degree of unanimity of judgments, as indicated by the average deviation and other measures shown in Table IV, as possible. Referring to Table IV we see that there are only four samples from which to select the sample for Rank I. Paper 115 has an exact median nearer to 1.00 than any of the others, the exact median being 1.11. But Sample 79 has one more judgment in the mode and consequently a smaller average deviation. The figures for Sample 10 are the same as for 79. Papers 10 and 79 are considered as being near enough to the ideal median value and as having a higher degree of unanimity of agreement on the part of the judges than any of the other samples in this group. These two papers being tied for Rank I, it was necessary to choose between them either by lot or by rational choice. The latter was followed and Paper 79 was selected. This was the only case of a tie. The paper for each of the other ranks was selected entirely from the figures.

Deciding between a fifteen- and a ten-unit scale.—After the fifteen samples were selected by the application of the principles stated above, a committee of two attempted to arrange them in their correct order from 1 to 15. The experience in this attempt led to the hypothesis that there was not sufficient difference in value between consecutive samples. So a ten-unit scale was selected by selecting papers having a difference of 1.50 between

TABLE IV. (*In Part*)

No. of Paper	Median	Exact Median	No. of Judgments on Median	Mode	No. of Judgments on Mode	Highest Rank	Lowest Rank	Maximum Variation	Maximum Variation on 76 Per Cent Central Cases	Average Deviation from Center
75.....	1	1.46	13	1	13	1	6	5	2	1.04
79.....	1	1.16	19	1	19	1	4	3	1	.36
115.....	1	1.11	18	1	18	1	4	3	1	.40
10.....	1	1.16	19	1	19	1	4	3	1	.36
227.....	3	2.69	8	3	8	1	6	5	4	1.12
234.....	3	3.13	4	.....	.....	1	8	7	5	1.72
173.....	3	3.42	6	3	6	1	15	14	6	1.42
191.....	3	3.40	5	.....	.....	1	10	9	5	1.84
192.....	3	3.40	5	2	6	1	9	8	4	.56
197.....	3	2.92	6	2	9	1	7	6	3	1.20
210.....	3	2.57	7	2	9	1	7	6	5	1.32
73.....	3	2.44	9	3	9	1	9	8	5	1.72
81.....	3	2.88	4	1	6	1	9	8	6	2.00
114.....	3	2.60	5	2	7	1	10	9	4	1.60
118.....	3	3.00	9	3	9	1	7	6	4	1.08
120.....	3	2.57	7	2	11	1	8	7	3	1.16
5.....	3	3.29	7	3	7	1	14	13	6	2.40
30.....	3	2.67	9	3	9	1	8	7	2	1.00
38.....	3	3.11	9	3	9	1	8	7	3	1.12
64.....	3	2.80	5	2	6	1	7	6	4	1.36
106.....	7	6.60	5	7	5	3	12	9	5	1.88
112.....	7	7.25	2	.....	.....	3	12	9	5	2.00
125.....	7	6.75	6	7	6	2	12	10	6	2.00
126.....	7	7.06	8	7	8	4	13	9	4	1.60
128.....	7	6.57	7	7	7	3	13	10	5	2.00
139.....	7	6.67	3	4	5	3	12	9	6	2.16
216.....	7	6.67	3	4	6	3	12	9	7	2.36
226.....	7	6.88	4	8	8	2	13	11	4	1.92
231.....	7	7.33	3	5	5	3	14	11	8	2.80
233.....	7	7.33	3	5	7	3	13	11	5	2.12
24.....	7	7.25	10	7	10	3	12	9	4	1.36
36.....	7	6.80	5	.....	.....	3	13	10	4	1.52
51.....	7	7.42	6	7	6	4	12	8	6	2.04
58.....	7	7.38	4	.....	.....	3	11	8	6	2.00
60.....	7	7.00	7	7	7	2	13	11	6	1.92
152.....	7	6.92	6	7	6	4	14	10	5	1.92
156.....	7	7.00	3	8	4	2	13	11	6	2.28
177.....	7	6.88	4	6	6	4	15	11	5	1.96
184.....	7	6.88	4	8	5	2	13	11	7	2.28
225.....	15	14.54	13	15	13	12	15	3	2	.84
4.....	15	14.67	15	15	15	4	15	11	1	.92
41.....	15	15.00	25	15	25	15	15	0	0	.00
77.....	15	14.84	19	15	19	12	15	3	1	.32
93.....	15	14.85	20	15	20	12	15	3	1	.28
101.....	15	14.53	13	15	13	13	15	2	1	.60
171.....	15	14.54	13	15	13	7	15	8	2	.92
188.....	15	14.88	20	15	20	2	15	13	1	.76

consecutive samples instead of 1.00, and having as high degree of agreement in judgments as possible. The following experiment was carried on to determine which scale, the fifteen- or the ten-unit scale, would be most likely to be satisfactory. Nine experienced school men laid out the fifteen-unit scale and the ten-unit scale in the ranking order which each believed to be the correct order, the samples being promiscuously arranged before each attempt. The result is shown in Tables V and VI.

TABLE V

Correct Order	Order in Which the Fifteen Papers Were Ranked by Judge No.								
	1	2	3	4	5	6	7	8	9
1	1	2	1	2	1	2	1	2	1
2	2	1	2	1	2	3	3	4	3
3	3	4	4	4	4	1	2	1	4
4	5	3	8	3	3	4	5	3	2
5	8	5	5	5	8	5	4	5	5
6	4	8	3	8	5	8	8	8	8
7	6	7	7	7	7	7	7	7	7
8	7	6	6	9	10	10	9	10	6
9	9	9	12	6	11	9	6	9	9
10	10	10	10	10	9	11	10	11	12
11	11	11	9	11	6	6	11	6	11
12	12	12	11	12	12	12	12	13	10
13	13	13	13	13	13	13	13	14	13
14	14	14	14	14	14	14	14	12	14
15	15	15	15	15	15	15	15	15	15

TABLE VI

Correct Order	Order in Which the Ten Papers Were Ranked by Judge No.								
	1	2	3	4	5	6	7	8	9
1	1	1	1	1	1	1	1	3	1
2	3	3	3	3	2	3	3	1	3
3	4	2	2	4	3	2	4	2	2
4	2	4	5	2	5	7	2	4	4
5	5	5	4	5	4	5	5	5	5
6	7	7	7	7	7	4	7	6	7
7	6	6	6	6	6	6	6	8	6
8	8	8	8	8	8	8	8	7	8
9	9	9	9	9	9	9	9	9	9
10	10	10	10	10	10	10	10	10	10

A study of these two tables shows that there is considerably more deviation from the correct order in the fifteen-unit tabulation

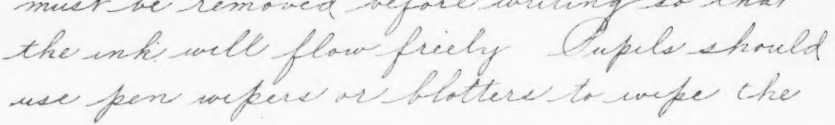
A Tentative Scale for the Measurement of Hand Writing

A new pen has a thin covering of oil to keep it from rusting This oil must be removed before writing so that the ink will flow freely Pupils should use pen wipers or blotters to wipe the oil off the pen.

MODEL

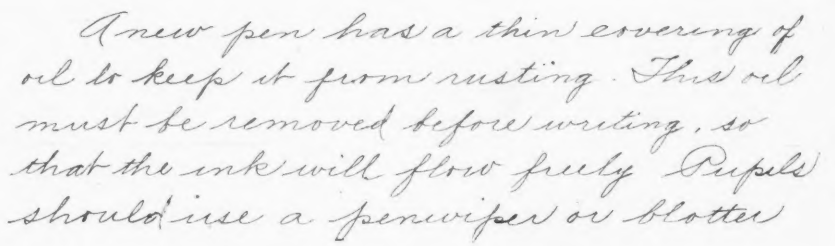
A new pen has a thin covering of oil to keep it from rusting This oil must be removed before writing so that the ink will flow freely Pupils should

Sample I.—Slightly irregular in alignment or height of letters Excellent in all other elements.



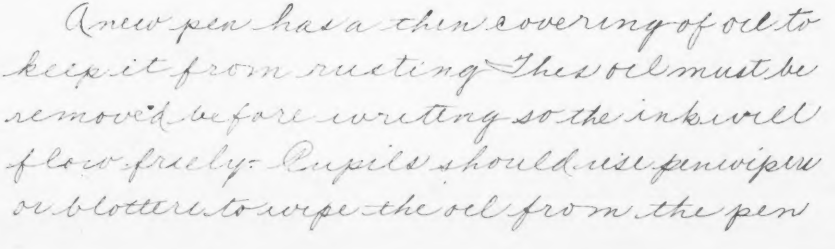
the ink will flow freely Pupils should
use pen wipers or blotters to wipe the

Excellent in all other elements.



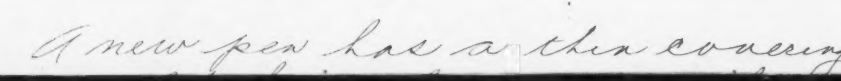
A new pen has a thin covering of
oil to keep it from rusting. This oil
must be removed before writing, so
that the ink will flow freely Pupils
should use a penwiper or blotter

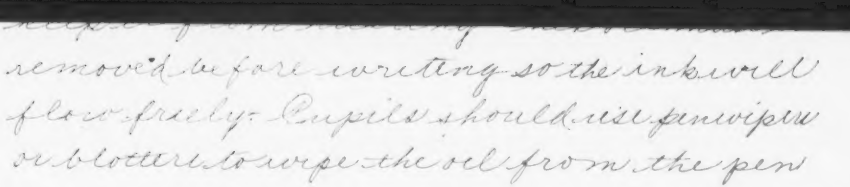
Sample II.—Inferior to I in quality of line, indicating poorer co-ordination; in uniformity of slant; and in letter formation.



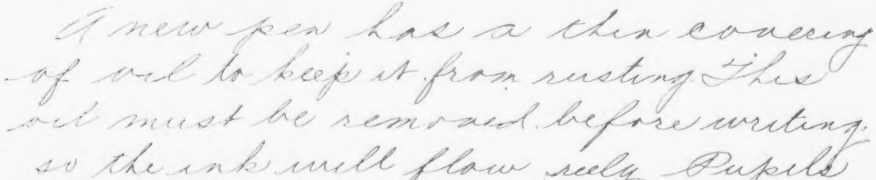
A new pen has a thin covering of oil to
keep it from rusting This oil must be
removed before writing so the ink will
flow freely. Pupils should use penwipers
or blotters to wipe the oil from the pen

Sample III.—Inferior to II in quality of line, uniformity of alignment, letter formation, and spacing between the words. The legibility is decreased by the crowding of the words together.

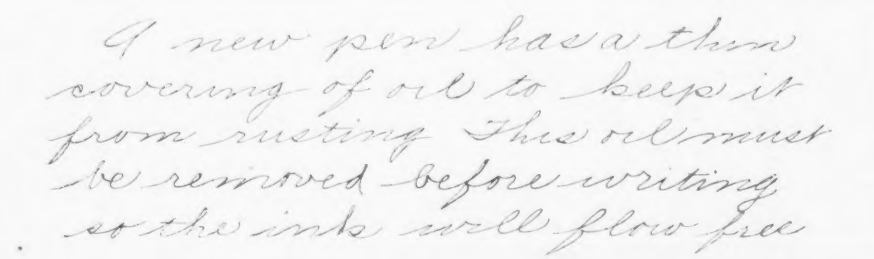




formity of alignment, letter formation, and spacing between the words. The legibility is decreased by the crowding of the words together.

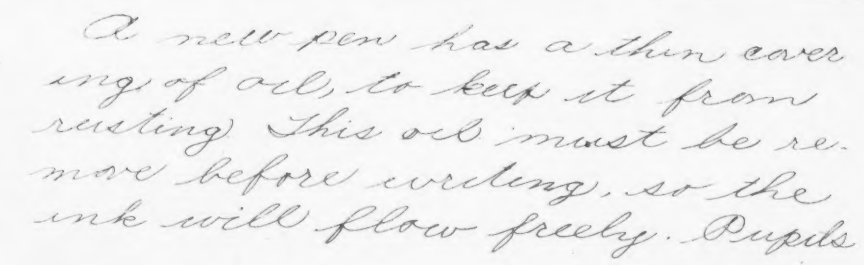


Sample IV.—Inferior to III in alignment and letter formation. The loop letters are well formed, but a number of the one space letters are poorly formed.

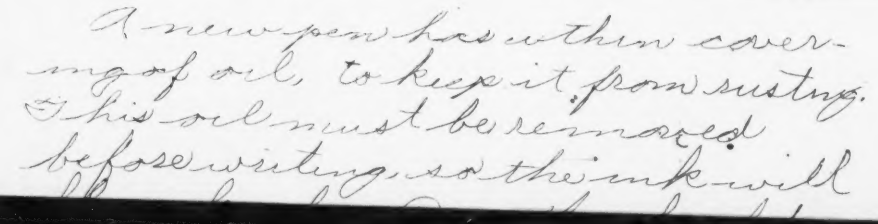


Sample V.—Inferior to IV in uniformity of slant. Compare the slant of the f's with the slant of the b's and h's. It is also inferior in spacing. The spacing between parts of letters, between letters, and between the words is too great, resulting in a 20 per cent reduction in number of words per line.

number of words per line.

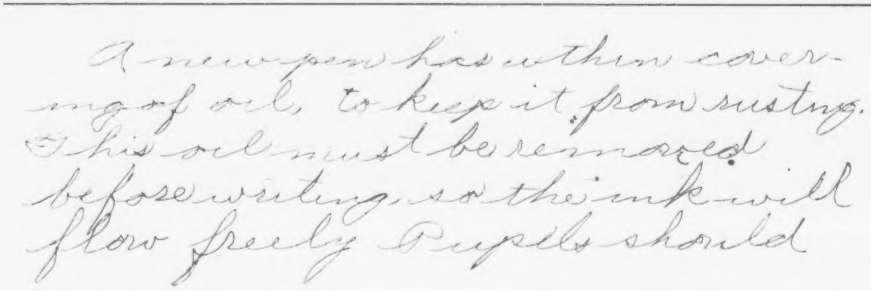


Sample VI.—Inferior to V in quality of line, uniformity of alignment, and letter formation. It is slightly extreme in degree of slant.

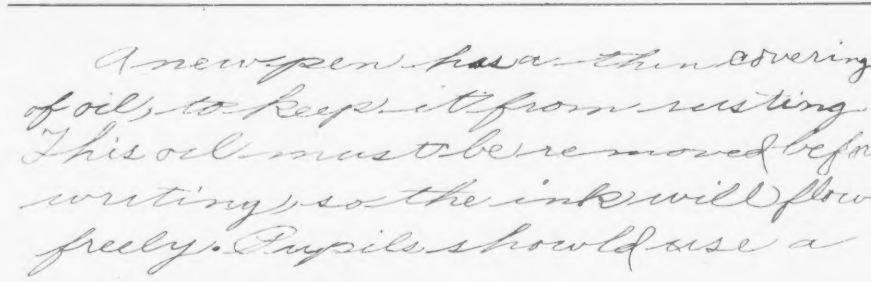


Sample VII.—Inferior to VI in quality of line, letter formation, spacing and uniformity of alignment. In some places the words are too close together and in others the letters are too far apart.

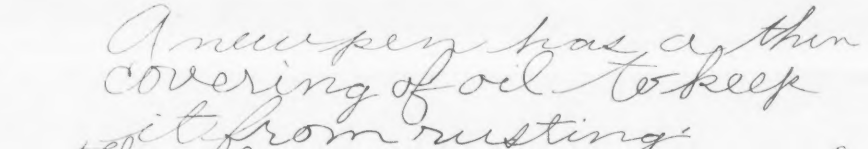
ink will flow freely. Pupils



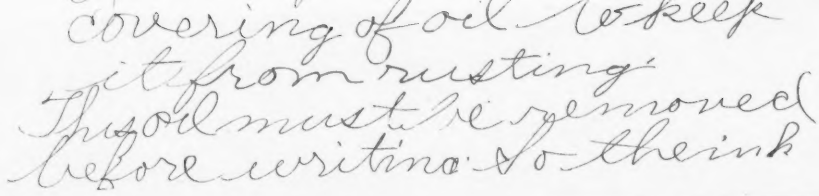
Sample VII.—Inferior to VI in quality of line, letter formation, spacing and uniformity of alignment. In some places the words are too close together and in others the letters are too far apart.



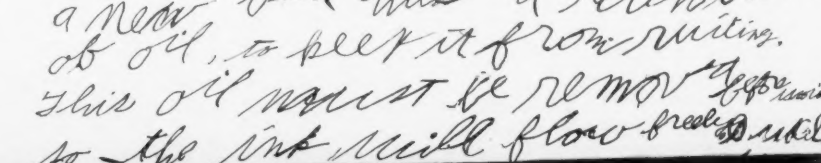
Sample VIII.—Inferior to VII in spacing, the words being so close together as to decrease the legibility. In places the letters are too far apart, and in other places too close together. The degree of slant is too great.



Sample IX.—Superior to VIII in quality of line and degree of slant. Inferior in letter formation and uniformity of slant. The size is too great and the spacing



Sample IX.—Inferior to VIII in quality of line and degree of slant, and inferior in letter formation and uniformity of slant. The size is too great and the spacing too wide, resulting in a serious reduction in the number of words written in the five lines.



Sample X.—Markedly inferior to IX in quality of line, uniformity of alignment, and in letter formation.

A new pen has a thin covering of oil to keep it from rusting. This oil must be removed before writing. So the ink

Sample IX.—Superior to VIII in quality of line and degree of slant. Inferior in letter formation and uniformity of slant. The size is too great and the spacing too wide, resulting in a serious reduction in the number of words written in the five lines.

a new pen has a thin covering of oil, to keep it from rusting. This oil must be removed before writing so the ink will flow freely. Boys should use a pen wiper. Girls should wipe

Sample X.—Markedly inferior to IX in quality of line, uniformity of alignment, and in letter formation.

Analysis of Elements to be Considered in Judging Handwriting.

1. Letter Formation—Primary essential to legibility. The letter formation should be consistent.

2. Uniformity of Slant—Aids legibility. Result of regularity or control of movement.

3. Uniformity of Alignment—Aids legibility. Result of regularity of movement.

4. Spacing—Between parts of letters, between letters, between words. Aids legibility. Correct spacing results largely from a recognition of correct spacing and a realization of its importance.

5. Quality of Line—Affects legibility to some extent. Good quality of line results from ease, fluency and regularity of movement.

6. Size—Of minor importance unless the size is so extremely small or so extremely large as to affect legibility.

7. Degree of Slant—Medium slant. Extreme slant is due to a wrong position of the paper or to a movement too lateral.

than in the ten-unit tabulation. The experiment seemed to indicate that the difference in value between consecutive samples in the fifteen-unit scale is too small to result in close agreement in the grading of different persons in applying the scale, and that the deviation from the correct order shown in the table for the ten-unit scale is sufficient to insure that ten is not too small a number of units. In other words ten is selected as the number of units on the scale because it is believed that persons in using the scale in grading writing papers will agree more closely than they would with the fifteen-unit scale.

Selection of the samples for the ten-unit scale finally chosen.—The following plan was used in selecting the ten-unit scale. Sample 41 was unanimously ranked 15th, or lowest, by the twenty-five judges (see Table IV). This was selected for the tenth or last unit on the scale. Sample 79 (see Table IV) was selected for first place for the reasons stated previously. The difference between the exact median for the sample for Quality 1 (1.16) and the sample for Quality 10 (15.00) is 13.84. Divide this by the nine spaces that there are between the ten samples and we have an interval of 1.54 between each two consecutive samples. The standard median rank of each of the ten samples and the actual median rank of the samples chosen are shown in Table VII.

TABLE VII

Rank	Standard Median	Actual Median
I	1.16	1.16
II	2.70	2.67
III	4.24	4.22
IV	5.78	5.75
V	7.32	7.25
VI	8.86	8.80
VII	10.40	10.20
VIII	11.94	11.86
IX	13.49	13.40
X	15.00	15.00

It would take too much space to go into the details of how each sample was selected from the figures in Table IV, but the samples for Ranks II and V will be given as examples. As just indicated in Table VII, the standard median for Rank II is 2.70. As

shown in Table IV, there are sixteen samples having an exact median between 2.50 and 3.50. The problem is to select a sample with an exact median near 2.70 and with as small a degree of variability in judgments as possible. It is evident that sample 173 would be a poor one because it has an exact median of 3.42 and it has a wide variability in judgments as shown by its large average deviation of 2.42, its wide range in judgments from Rank I to XV, and its small number of judgments on its mode. By consulting the exact medians and the average deviations it is seen at once that the choice will be between Sample 227 and Sample 30. Paper 227 approximates the exact median of 2.70 slightly closer than Paper 30, having a median of 2.69 while the latter has a median of 2.67. But Paper 30 has the advantage of a smaller degree of variability of judgments, as is shown in the following comparison. It has a smaller average deviation, a smaller maximum variation of the central 76 per cent of the judgments, and it has a larger number of judgments on the mode, while Paper 227 has the advantage in only one point, the maximum variation of all judgments. Sample 30 was chosen because it has a median close enough to the ideal median and has a slight advantage in the agreement of judgments.

The sample for Rank V should have a median approximating 7.32 as indicated in Table VII. All samples having a median between 6.50 and 7.50 are assembled together in Table IV. Sample 231 and Sample 233 each has a median of 7.33, but the average deviation in each case is too large to make either of them usable. Paper 24 with an average deviation of 1.36 shows a considerably better agreement of judgments than any other sample in the list. Its median of 7.25 is considered close enough to the standard median.

By this kind of a comparative study from the data on Table IV, each of the samples for the ten ranks were selected.

Making the analysis for the scale.—After the ten samples were selected, a printed copy of each was sent to each of the eight principals, the head writing supervisor, and Professor Freeman of the University of Chicago. Each of these persons prepared an analysis of each sample stating in what respects the sample is

poorer than the one above it and in what respects it is better than the one below it. A committee of two, after a careful study of all the analyses, formulated the analysis as it is printed on the scale. In addition an analysis of the elements entering into the judgment of handwriting is printed at the bottom of the scale. A very important value to the persons co-operating in this study has been the increased ability in the analysis and judgment of handwriting.

PART III. THE SCALE IN USE

C. R. STONE
Mann School, St. Louis, Missouri

The eight co-operating principals are now using the scale in their schools in accordance with the purposes set forth in Part I of this article. The following are some specific uses being made in one or more schools. In accordance with the suggestions of the supervisor of writing, it is a common practice in St. Louis for each pupil to have a progress package in writing, which consists of samples written from time to time and arranged in such a way that his last paper may be compared with the one before or with the one written at the beginning of the year. The pupil's progress is stated in definite terms when each of the papers is graded by the scale and a numerical rank placed on the paper. By making a tabulation for the class the teacher may see how the class is progressing in terms of definite units.

Table VIII shows the progress of a class from the beginning of school in September until the middle of November, a period of ten weeks. At the beginning of school in September, there were 4 pupils ranked IV, 6 pupils ranked V, 9 pupils ranked VI, etc. In November 1 pupil ranked II, 2 pupils ranked III, 3 pupils ranked IV, 11 pupils ranked V, etc. It is evident that this class has made considerable progress in ten weeks.

Table IX shows the progress of individual pupils for the same class considered in Table VIII. It was a very important thing for the teacher to know that the class had made progress and how much progress the class had made. It is also an important thing

for the teacher and the individual pupil to know how the pupil has progressed. Table IX (reading from the bottom) shows that 1 pupil advanced 3 ranks, 6 pupils advanced 2 ranks, 9 pupils advanced 1 rank, etc. It should be borne in mind that an advance

TABLE VIII

SHOWING THE PROGRESS OF A SIXTH-GRADE CLASS

RANK	NO. PUPILS	
	September	November
I	.....	.....
II	.....	1
III	.....	2
IV	4	3
V	6	11
VI	9	13
VII	2	5
VIII	9	1
IX	5	.....
X	1	.....

of 1 rank in ten weeks, as measured by this scale of 10 ranks is a big gain. The 11 pupils who have the same rank at the end of ten weeks as they had at the beginning have not necessarily failed to advance. They have not advanced to the extent of 1 rank.

TABLE IX

PROGRESS ANALYZED BY INDIVIDUAL PUPILS

Progress Made in Terms of Ranks	Number of Pupils
−2	1
−1	7
0	11
1	9
2	6
3	1

There are 7 pupils who have lost 1 rank and 1 pupil who has lost 2 ranks. The teacher should be cautioned not to be discouraged about these pupils who have either apparently lost ground or have stood still. As Professor Swift[1] has pointed out, progress in learning

[1] *Mind in the Making*, chap. vi, "The Psychology of Learning."

is never continuous. Curves drawn to illustrate this show rises and falls and plateaus of arrest. On this particular day these pupils may have fallen far below recent previous attainment. Sudden jumps of progress are often immediately preceded by apparent setbacks. But taken for a sufficiently long period, the line of progress should be upward. For instance, at the end of a year the pupil should show a higher rank than at the beginning of the year. By measuring the pupil's writing every four or five weeks in definite numerical terms with an objective standard and by keeping a record of these measurements, it is possible for the teacher to locate the ones who are not making normal progress, diagnose their cases, discover the causes of the failure to progress, and provide remedies. The pupil takes an interest in keeping this record of progress. Motive for the writing is provided by thus taking advantage of his natural interest in himself as well as his classmates.

Pupils also take an interest in measuring their own writing by the scale. It is a common experience in the schools using the scale that the pupils tend to estimate their writing too high, often very much too high. This seems to indicate that the pupil is satisfied with his writing and that he has not reached the plane of intelligent analysis of his writing. Experiments are being carried out to determine to what extent pupils can be trained to use the scale with a fair degree of skill in grading their own papers and to what extent this will help them to improve their writing.

A very important factor in the successful use of a writing scale is the attainment of skill in the use of it by those concerned in the teaching of writing. Skill in the use of a writing scale will come only as skill in the use of a ruler comes—by a great deal of experience in the use of it. Later in the year experiments will be carried out to determine to what extent different graders will agree in the measurement of the same samples of writing.

STATEMENT OF ORGANIZATION IN KALAMAZOO PUBLIC SCHOOLS. I[1]

S. O. HARTWELL
Superintendent of Schools, Muskegon, Michigan, Sometime Superintendent at Kalamazoo

The legal arrangement for school grades in Michigan still breaks the general system into three groups as follows: Grades I–IV, primary school; Grades V–VIII, grammar school; Grades IX–XII, high school. Many schools have a "beginners' grade" below Grade I, and some schools, as is the case in Kalamazoo, have kindergartens. These are outside of the regular grading. Also, in a few cases the eighth grade has been abolished and only seven grades are left in the elementary school.

While this legal form persists and is the basis for reports and statistics, as well as the guiding factor to a large extent in the arrangement of the courses of study, the general organization in Kalamazoo has been considerably modified in recent years and the plan may now be fairly stated as follows: (1) the kindergarten; (2) elementary grades covering Grades I–VI; (3) intermediate grades, Grades VII–IX, arranged on departmental or junior high-school plan; (4) senior high school, Grades X–XII; (5) special schools and departments, viz.: (*a*) special rooms for backward or deficient pupils, six in number; (*b*) oral school for the deaf; (*c*) fresh-air room; (*d*) ungraded room for boys; (*e*) vocational school for girls; (*f*) vocational school for boys (called the continuation school).

THE SENIOR HIGH SCHOOL

For more than fifty years Kalamazoo has had a high school somewhat on the traditional lines. Indeed, this school, through the "Kalamazoo decision" by Judge Thomas M. Cooley of the

[1] This statement was first prepared as a report of conditions in and prior to the school year 1914–15; hence the occasional statement of personal opinion. With slight changes in details the grade arrangement here described is still continued.—S. O. H.

Supreme Court of the state of Michigan, which established the legal status of high schools, may fairly be called the forerunner of the high-school development of the Middle West. The school has always had the four grades IX–XII and still has a small portion of the city's ninth-grade enrolment in order to accommodate the adjacent subdistrict. But upon the completion of the new building in 1913, plans were so modified as to undertake with the school year 1914 a junior and senior division; the central high school in effect became the senior high school with the complete enrolment for the city in Grades X, XI, and XII. In the same building are housed at present the vocational classes for boys and girls mentioned under the special classes in the plan of organization.

DEPARTMENTAL OR JUNIOR HIGH SCHOOLS

Since 1902 Kalamazoo has had one or more departmental schools on a plan approaching the junior high-school arrangement. For the last five years there have been three in different sections of the town. Local conditions were the chief cause for starting this arrangement. About 1878 a one-story building providing for departmental work from the primary grades up was built in the northwest section of the city. Some time in the eighties the eighth grade was concentrated in one building near the high school and this plan was continued until the growth of the city demanded further accommodations. With the requirement of more high-school room, in 1902, the Woodward Avenue building was rearranged to secure a departmental school covering Grades VIII, IX, and X which had the use of one portion of the building. Later, such schools were established in new buildings in the Portage Street and East Avenue districts. Promotion was given by subject between Grades VIII and IX as in the regular high-school grades, and this fact, coupled with the familiarity with high-school work which eighth-grade pupils gained through the association of the different grades, has carried an increased proportion of pupils from Grade VIII into the high school.

Up to 1914 this arrangement of departmental schools had comparatively slight influence on the arrangement of the course of study. With the increased accommodations for upper grades in 1914, it

was possible, without any severe break in arrangements, to place all of Grades VII and VIII on the departmental plan and to rearrange both accommodations and courses with a nearer approach to the junior high-school idea. Ten ward-school buildings are now divided into three groups: (1) Four of the smaller buildings house pupils below Grade VII; (2) three larger buildings (sixteen to twenty rooms) have, in addition to the kindergarten and primary grades, departmental seventh and eighth grades; (3) three other buildings, each built with a view to departmental work, enrol pupils from the kindergarten through Grade IX. We thus have three intermediate departmental schools covering Grades VII and VIII, and three intermediate or junior high schools, including Grades VII–IX.

The arrangement of the course of study now admits certain options with intended differentiation of individual plans of work beginning in Grade VIII. In certain buildings Latin and German classes are started in the eighth grade; in two buildings eighth-grade classes in typewriting have been established. Opportunity is given also to take double courses in manual training, instead of the options just mentioned. The probability is that in a year or two this method of option can be brought down into Grade VII, but the effort has been to secure a steady growth without making too many or too radical changes at one time.

ELEMENTARY SCHOOLS

For the elementary schools the first six grades are now treated as a unit and for the regular work, so called, are under the direction of one supervisor. The plan of organization has some features adapted from the grade arrangement used in Gary, Indiana. The modifications, however, are such that the plan becomes to some extent individual to our own city. The special aims in mind when the new arrangement was determined were three: (1) to secure better instruction in some of the special branches if this could be done without sacrificing other lines of work; (2) to make more complete use of the school building and to accommodate more pupils; (3) to secure, without prohibitive cost, an attention to physical training that was impossible under the customary organization. In other words, it was a plan not to decrease cost but to

make the value received greater in one of three ways; (*a*) by strengthening instruction; (*b*) by increasing the physical accommodations of the school; (*c*) by adding needed factors to the curriculum.

HISTORICAL STATEMENT

The plan was first undertaken experimentally in the East Avenue school, in February, 1911. There were at first many difficulties of adjustment and the method was carried on in this building alone for a year and half before any attempt was made to introduce the plan in other buildings. By that time, the value of certain ends secured seemed well established and other buildings have undertaken the plan as follows: in 1912–13, Lake Street School, 18 rooms;[1] Woodward Avenue School, 20 rooms; in 1913–14, Frank Street School, 16 rooms; Vine Street School, 20 rooms; in 1914–15, North West Street School, 12 rooms; Portage Street School, 18 rooms. Plans for 1915–16 will include all the grade schools with the exception of a temporary building which accommodates only Grades I–III.

The essential points involved in this rearrangement are: (*a*) two grades or groups of pupils per teacher for the regular work, (*b*) special teachers in certain subjects or lines of work; (*c*) the rearrangement of daily time schedule; (*d*) the rearrangement of rooms and equipment.

A. Each regular grade teacher instructs two groups averaging from thirty to forty pupils each in the regular subjects, viz.: arithmetic, language, spelling, reading, geography, history, etc. Each group spends five periods a day in the regular room (150 minutes), 90 minutes in the forenoon and 60 minutes in the afternoon.

The plan may be made to include all grades from I to VI inclusive or, in cases where Grades VII and VIII are not departmentalized, I–VIII. We have made some experiments in the first grade and at present are carrying the first grades in most buildings in separate rooms with the single teacher—that is, they are managed practically on the old plan. One or two rooms conducted

[1] Not necessarily the exact number of rooms in the building. Several of the buildings mentioned have recitation rooms, etc. This estimate shows the approximate building accommodation on the old plan of counting grade rooms.

on the new plan have shown us that the first-grade pupils seem to accomplish as good work as before, but the general opinion of the people in charge is that there is more flexibility and less strain under the older method, at least for the first half of the first grade immediately after the transfer from the kindergarten. The new method, however, may be applicable in buildings where first grades are crowded and two schools are using one room. It would secure an amount of instruction time equal to that given in the old arrangement and in addition the chance for supervised play and outdoor exercise, not given under what is known as the relay plan. At the same time we have adapted the plan above first grade and have varied the treatment of the first grade according to the conditions in different buildings. If there is ample room for the grades to divide properly, both halves of the first grade are held under the same arrangement. If not, the special adaptations are made in each building.

B. Five periods each day (150 minutes) are spent by each class in certain lines of work under special teachers. The two groups under a given regular teacher may be called Group A and Group B. It is clear that if each group spends half of the school day in the regular room, it must be cared for in other parts of the school plant during the other half of the day.

Special teachers are selected because of special training or interest in the given subject. They are under the direction of the supervisor of the special department; i.e., the art teachers form a group under the supervisor of art and the regular teachers are not responsible for carrying on instruction in art. The same is true of music, physical training, etc. As the number of special teachers grows, all of them come either under the special supervisors or under the general supervisors as the organization and kind of instruction given may determine.

In Kalamazoo at present the specific plan for art and music is arranged on a two-day schedule, these subjects alternating for a given group. One period in each session is given for physical training for grades through the fourth; one period per day for Grades V and VI; the other period being taken for study period. In one building, penmanship and nature-study have been alternated.

Nature-study would have been further emphasized had we been able to secure teachers well equipped to give instruction in that subject.

C. The school day has been lengthened somewhat and now provides ten periods a day of thirty minutes each with a leeway of ten minutes or more in each session for the recording of attendance, passing of classes, toilet periods, etc. Of these ten periods, six occur in the morning and four in the afternoon. During the first year, the period used was the forty-five-minute period, divided into halves for certain groups, but the thirty-minute period has been found more satisfactory. The lengthening of the school day is not essential; but it is quite necessary for arrangement of work that the periods be arranged in even-numbered groups, i.e., six in the morning and four in the afternoon, has strong advantage over five in the morning and five in the afternoon. Moreover, the lengthening that has occurred is apparently carried by the teachers with less tension than the former day with the wide distribution of work for each teacher. In the buildings having elementary and junior high schools, two different time schedules are involved. This does not make added difficulties for the elementary grades, however, as the two programs do not interfere.

The daily time schedule will naturally vary from grade to grade according to the subjects undertaken. Of the five-hour day, for instance in Grade V, 150 minutes are given to the regular subjects, i.e., geography, arithmetic, language, reading (basal), history, and spelling; the other 150 minutes are used in special work as follows:

Music or art	30 minutes
Physical training and physiology	30 "
Literature (which includes time given under the old method to supplementary reading)	30 "
Penmanship	30 "
Assigned study	30 "

Manual training usually takes time from regular grade work—one-half session per week. Sometimes the deduction is made from literature or physical training. Schools that have made good provision for manual training in the grades can easily make this one of the special subjects, adding for instance the time assigned to study

to the regular manual-training assignment. The old-fashioned recesses are discarded.

The general arrangement for the other grades is similar. Thus the actual assignment for the regular subjects is not decreased, though the rearrangement of time for reading places some of that work under the special heading of "literature." The time for physical training is considerably increased and made of much more value through the special instruction and through the advantages given for play and exercise in the open air. The time for music and art either remains the same or is slightly decreased, but the results from the work under special teachers show that the actual time employed has secured stronger results than the old method.

D. The plan involves special arrangements and equipment of rooms for the special subjects. Ten classes or groups of pupils make a unit for a ten-period day, while twelve will be the unit for a six-hour day on a similar division of time. For each set of ten classes there are needed on this plan five regular classrooms which may be provided with seats and arranged in the usual manner; a recitation room for music and art, a recitation room for literature, a recitation room for penmanship or study, a study room, and one, preferably two, playrooms or gymnasiums. While a large proportion of the time given to physical training throughout the year is spent on the playgrounds, it is necessary to have some sort of provision within the building so that all divisions having time allowed for physical training may, in stormy weather, spend that time within the building. On the first count this does not save any rooms. Undoubtedly, however, since the music and art alternate, one room can be used for the two; hence one room is saved. Again, if the building has an auditorium, the literature classes, which involve considerable dramatic presentation, may be conducted in the auditorium, or special lines of auditorium work developed, replacing penmanship, etc., so that a second room of the ten is saved. Most buildings, even of the older types, have rooms in attics or basements available, with slight change, for use as playrooms, and hence in most buildings a third room out of the ten may be saved; or wherever gymnasiums have been provided, a classroom is saved through the fact that the gymnasiums are

put to constant use and thus the vacant periods of other groups are concentrated and an additional classroom made available.

If the building is a large one of modern type with auditorium, gymnasium, and playrooms, one room may be assigned for special use as music room, one as an art room, one for penmanship or study, one as a literature room, and then auditorium and gymnasium can be so arranged by combination of groups as possibly to save a fourth additional room through the combination. Besides, economy is secured through the fact that portions of the building which cannot be used for regular classrooms for a whole session may easily be available for either playrooms or special rooms for the shorter period of occupancy. Hence in the two ways there is economy of space. The cheaper portions of the building may be put to steady use and from 20 to 30 per cent of the actual classroom space may be saved for further enrolment. The latter point is somewhat limited by the fact that the number of class divisions cannot go above twenty (or twenty-four in a six-hour day) without necessitating further accommodations for the special groups. The estimate of space saved, however, as 25 per cent, on the basis of accommodations secured, is conservative.

[*To be concluded*]

BOOKS RECEIVED

MACMILLAN, NEW YORK

A Beginner's Psychology. By EDWARD BRADFORD TITCHENER. Cloth. Illustrated. Pp. 362. $1.00.

The Book of Brave Adventures. By DOROTHY D. CALHOUN. Cloth. Illustrated. Pp. 147.

Heroes of the Nations. By HERMAN S. ALSHOUSE. Cloth. Illustrated. Pp. 160. $0.20.

How the Flag Became Old Glory. By EMMA LOOK SCOTT. Cloth. Illustrated. Pp. 173.

A Brief Bibliography of Books in English, Spanish, and Portuguese, Relating to the Republics Commonly Called Latin American, with Comments. By PETER H. GOLDSMITH. Paper. Pp. 107.

RAND McNALLY & CO., CHICAGO

Storyland in Play. By ADA M. SKINNER. Cloth. Illustrated. Pp. 143. $0.45.

Stories to Act. By FRANCES WICKES. Cloth. Illustrated. Pp. 142. $0.45.

Story Hour Plays. By FRANCES S. MINTZ. Cloth. Illustrated. Pp. 134. $0.45.

G. P. PUTNAM'S SONS, NEW YORK

Experimental Physics. By HAROLD A. WILSON. Cloth. Illustrated. Pp. 405. $2.50.

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LONGMANS, GREEN, & CO., NEW YORK

Practice Primer. Horace Mann Readers. By WALTER L. HERVEY and MELVIN HIX. Cloth. Illustrated. Pp. 119. $0.30.

Sixth Reader. Horace Mann Readers. By WALTER L. HERVEY and MELVIN HIX. Cloth. Illustrated. Pp. 460. $0.65.

Gate to English. By WILL D. HOWE, ZELLA O'HAIR, and MYRON T. PRITCHARD. Cloth. Illustrated. Book I, pp. 298, $0.48; Book II, pp. 375, $0.65.

D. C. HEATH & CO., BOSTON

The Wonders of the Jungle. By PRINCE SARATH GHOSH. Cloth. Illustrated. Pp. 190. $0.48.

High School and Class Management. By H. A. HOLLISTER. Cloth. Pp. 314.

J. B. LIPPINCOTT CO., PHILADELPHIA

Practical Primary Arithmetics. By T. C. BRUFF, C. H. HAYDEN, and L. E. WATKINS. Cloth. First Book, pp. 136; Second Book, p. p184.